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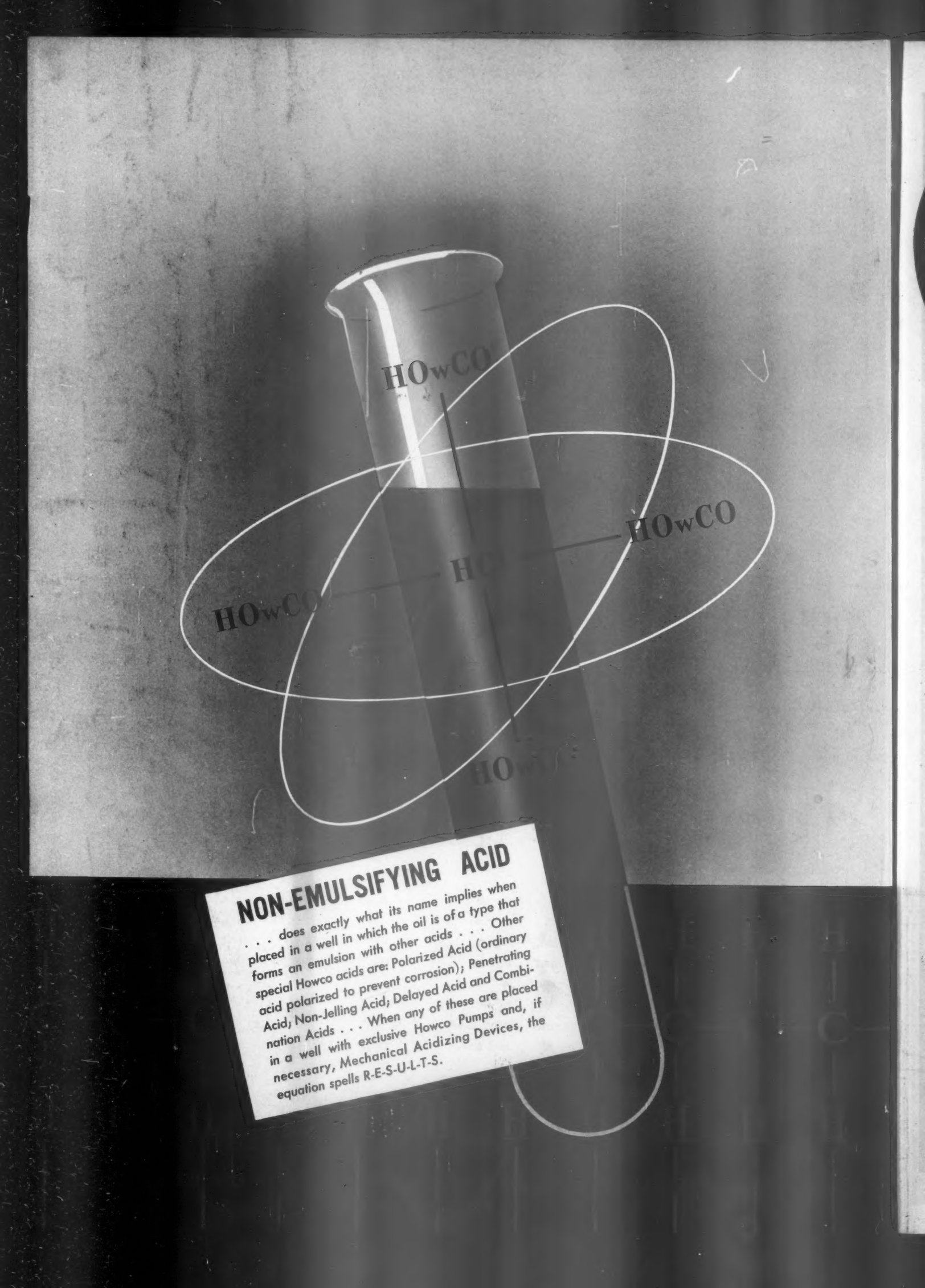

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The Oil and Gas Journal

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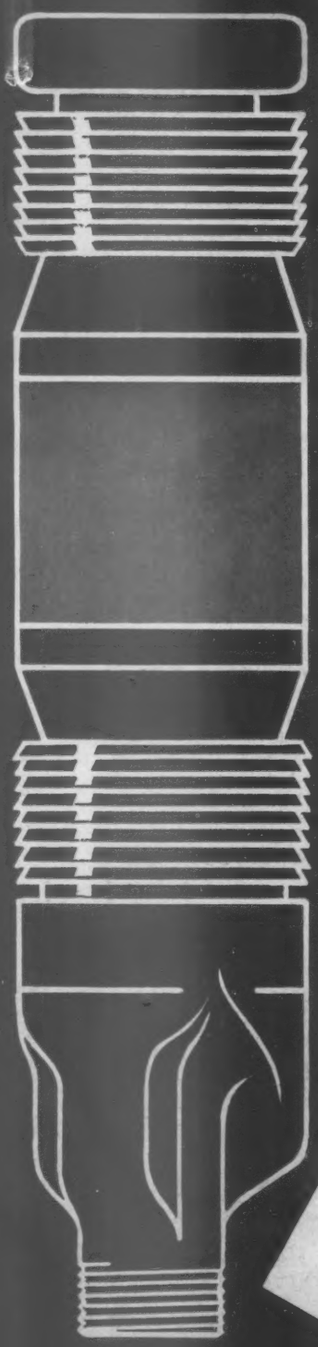

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Trends

Pennsylvania Crude At Highest Level in More Than 2 Years

WITH a 25-cent advance, effective January 1, Pennsylvania Grade crude oils are at the highest levels since 1937. Except for a period of 3 months in the summer of 1937, the present price of $2.75 per barrel for the Bradford Grade crude is the highest since the early part of 1930.

CRUDE PRODUCTION *3,550,350 bbl. daily average—down 316,200 bbl. One year ago 3,206,827 bbl.*

CRUDE STOCKS *236,038,000 bbl. as of December 23—up 3,423,000 bbl. One year ago 271,718,000 bbl.*

GASOLINE STOCKS *78,707,000 bbl. as of December 23—up 549,000 bbl. One year ago 71,126,000 bbl.*

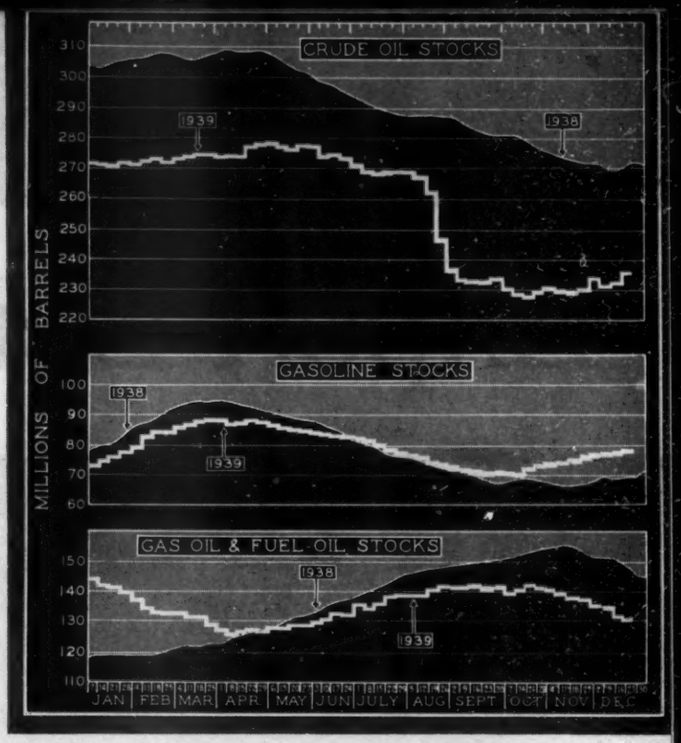
GAS AND FUEL-OIL STOCKS *130,109,000 bbl. as of December 23—down 2,054,000 bbl. One year ago 146,755,000 bbl.*

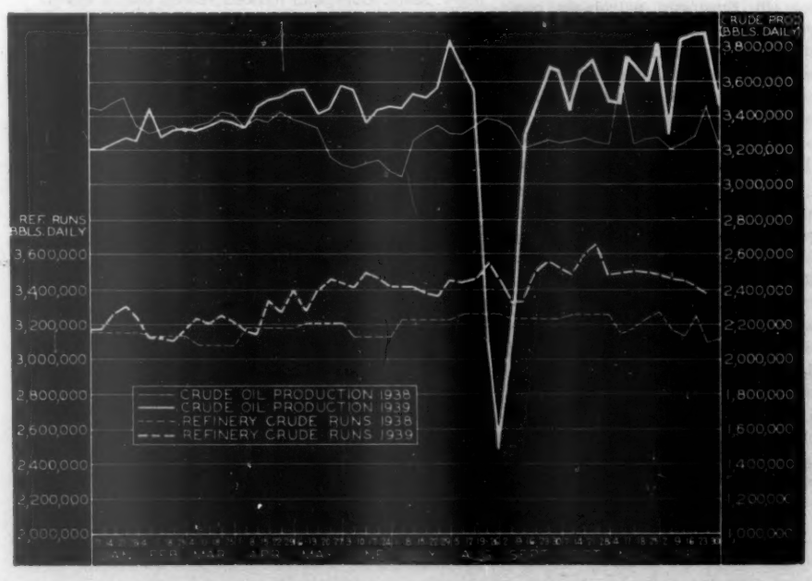
REFINERY RUNS *3,395,000 bbl. daily week ended December 23—down 20,000 bbl. One year ago 3,160,000 bbl.*

(Later A.P.I. figures on refinery stocks and runs not available owing to New Year holiday.)

The latest advance in the Pennsylvania Grade crude applying to a production of approximately 85,000 bbl. daily in Pennsylvania, Ohio, New York, and West Virginia, reflects the fact that producers and refiners brought their 1939 operations to an end in an exceptionally strong statistical position. The industry in that area started to improve early in 1939 after a period of price recessions in late 1937 and 1938. Crude runs to stills were reduced early in 1939 and excessive inventories were liquidated. At the same time the demand for industrial lubricants, motor oils and wax expanded. This trend was accentuated by a large increase in export demand for lubricants with the start of the European war on September 1. Due to export and domestic sales Pennsylvania Grade operations in recent months have been at peak levels, with sales readily absorbing the increased supplies.

The crude-price improvement is explained as entirely due to the higher prices for the Pennsylvania Grade lubricants. At the start of 1939 the following representative prices in cents per gallon were in effect in western Pennsylvania where the bulk of the Pennsylvania Grade crude oil is refined: Bright stock, 10 pour, 15 cents; 600 steam-refined, 8 cents, and 200 neutral (low pour), 18 cents. Prices in effect for the same grade products at the start of this week were: Bright stock, 35 cents; steam-refined, 18 cents, and 200 neutral, 35 cents. The 122-124 petroleum wax which was 2.35 cents per pound a year ago is now quoted at 6¾ to 7 cents. Prices on gasoline, kerosene, distillate and fuel oil which are competitive with other refinery areas, are practically the same as they were a year ago. The Bradford Grade crude has advanced from $1.68 per barrel in effect January 1, 1939, to the latest quotation of $2.75 per barrel.


CRUDE OIL STOCKS
GASOLINE STOCKS
GAS OIL & FUEL OIL STOCKS
1939
1938
MILLIONS OF BARRELS
JAN FEB MAR APR MAY JUN JULY AUG SEPT OCT NOV DEC


CRUDE PROD. BBLS. DAILY
REF. RUNS BBLS. DAILY
CRUDE OIL PRODUCTION 1938
CRUDE OIL PRODUCTION 1939
REFINERY CRUDE RUNS 1938
REFINERY CRUDE RUNS 1939

DAILY AVERAGE PRODUCTION FOR WEEK

	Dec. 30, 1939	Bur. Mines Dec. est. of demand	Dec. state allowables	Dec. 23, 1939
Oklahoma City	92,200	.....	.....	109,150
Seminole fields	39,525	.....	.....	38,275
Remainder of state	292,675	.....	.....	288,350
Total Oklahoma	424,400	437,600	437,600	435,775
East Texas	394,379	.....	.....	492,850
West Texas	227,140	.....	.....	270,040
North Central Texas	103,218	.....	.....	129,106
Texas Panhandle	73,598	.....	.....	92,000
East Central Texas	81,591	.....	.....	93,342
Gulf Coast Texas	338,277	.....	.....	405,506
Southwest Texas	87,682	.....	.....	105,247
Total Texas	1,305,885	1,438,100	1,415,843	1,588,091
North Louisiana	68,225	.....	.....	69,535
Gulf Coast Louisiana	198,850	.....	.....	199,648
Total Louisiana	267,075	255,200	255,200	269,183
California	602,250	594,500	599,000	621,250
Kansas	178,600	168,000	170,600	183,750
Arkansas	70,650	56,100	69,442	70,145
Eastern fields	104,100	104,600	.....	101,220
Illinois	332,572	315,200	.....	334,684
Michigan	67,298	61,000	.....	66,162
New Mexico	110,450	110,000	110,000	110,460
Rocky Mountain area	87,070	79,400	.....	85,830
Total United States	3,550,350	3,619,700	.....	3,866,550

Outside the Pennsylvania Grade area, reports from the two new oil states, Nebraska and Mississippi, were of special interest. The Falls City discovery well in Nebraska was reported flowing after the hole had been reconditioned. In Mississippi an additional producing well was reported in the Tinsley area, but several wildcat tests over a large area were dry. Reflecting the high rate of national crude-oil production the latter part of December, crude stocks increased 3,423,000 bbl. according to the latest B. of M. report, covering the week ending December 23.

Export Demand Depends

In New York thousands of trucks built for the Allies await shipment in foreign bottoms

- **Petroleum exports during the first 4 months of the war have disappointed those who expected a war boom.**
- **Evidence points to belligerents drawing upon long-accumulated stocks, which with restrictions on private consumption kept down needs.**
- **Venezuela and Colombia have provided 60,000 bbl. daily new production since December 1.**
- **France reported negotiating with Mexico for 4,000,000 bbl. of gasoline and 2,225,000 bbl. of crude oil during 1940.**
- **Dislocation of tanker routes and war risks have disrupted shipments which are affected by high insurance rates.**
- **British contraband seizures, limiting neutrals to normal imports, have also been a factor in demand.**

By H. STANLEY NORMAN

NEW YORK, Jan. 2.—Failure of the petroleum export market to develop anything resembling the activity generally expected by many when the European war started was one of the major disappointments of the final quarter. Refiners were reluctant to believe that failure of foreign demand was anything more than a temporary stopgap resulting from cautious preparation for a violent and protracted conflict.

Only sporadic skirmishes have developed on the western front. Since the firsh rush of concentrating troops, arms, munitions, and mobile equipment along the German-French frontiers, little has developed to require excessive use of petroleum.

When warfare will develop the full potential consumption of the European mechanized armies is anybody's guess, and the answer rests beyond determinability in light of present known factors.

Figures for the 2 war months currently available indicate more conclusively than ever that petroleum exports of the past few years were deflected in part to wartime emergency stocks. This fact is strikingly indicated by the absence of any particular shifts in petroleum movement since war was declared. The facts imply that emergency stocks of the belligerent nations had been adequately considered for a period of years.

The increase of 13 per cent in the September exports of refined products over shipments in the same month of 1938 contributed to the expectancy of Gulf Coast refiners for war business and gave them exaggerated ideas of demand which would develop later on. Exports of refined products, however, suffered a slump in October dropping nearly 10 per cent behind September, and were only slightly higher than in October 1938.

While statistics are not yet available, information in the industry indicates that exports continued disappointing through November and December. The last half of December was particularly disappointing.

Present indications are that crude-oil exports from the United States will total slightly less than 74,000,000 bbl. when all data for 1939 are available. Exports of refined products for the year will total something like 117,500,000 bbl., which will be a new all-time record, representing an advance of approximately 1,000,000 bbl. over our foreign trade for 1938.

Wars' Effect on European Consumption

Some European market observers anticipate that the increase in European petroleum consumption this year will be as high as 7 or 8 per cent. This opinion, however, is made contingent upon early cessation of hostilities and a return to peacetime conditions in all countries. If a peaceful settlement is not reached during the year students of European affairs believe petroleum consumption will not exceed 1939 demand.

New supplies of oil from Venezuela and Colombia totaling approximately 60,000 bbl. a day since the first of December will doubtless exert a strong influence on U. S. export markets for the first half of 1940 and perhaps indefinitely.

Rumors were current in New York and elsewhere that the French Government was negotiating with Mexico for delivery during 1940 of approximately 4,000,000 bbl. of gasoline and 2,225,000 bbl. of crude oil. Confirmation was lacking on the rumored negotiations between France and Mexico, although many market observers considered it was highly possible, since the Mexican government-controlled oil business is probably in position to undersell any other source in the world.

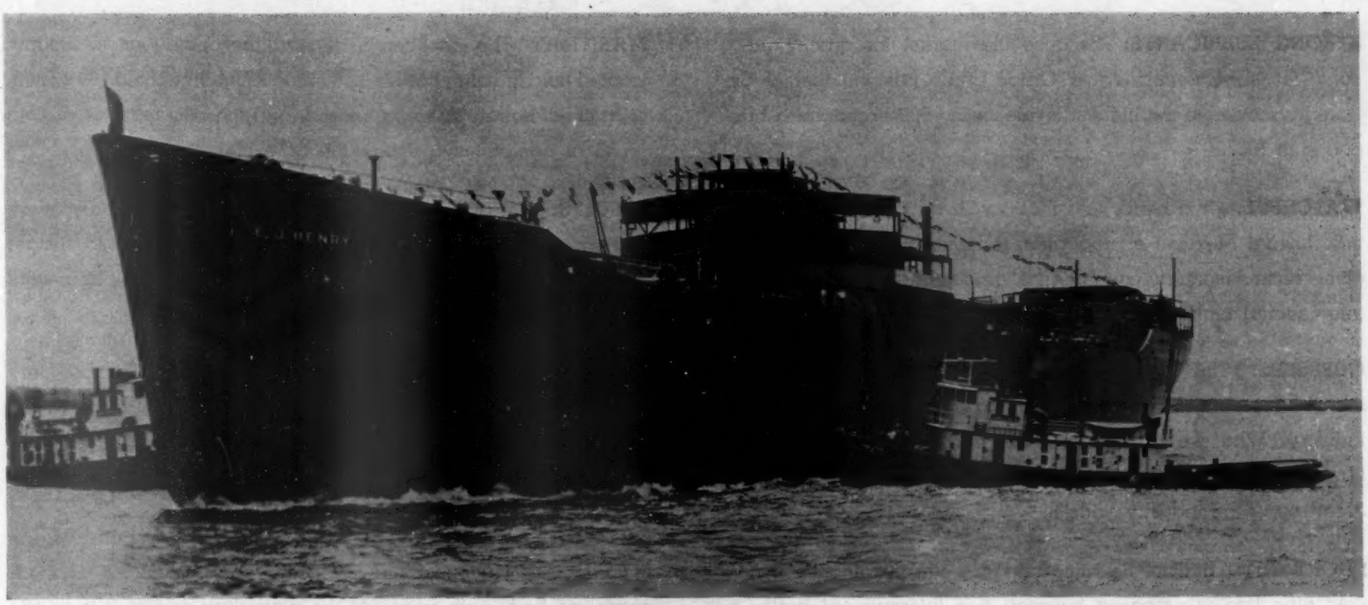
Severity of restrictions on civil consumption in European nations is more symbolic of attention to eventualities than of any immediate petroleum shortage. The fact that some of the neutral nations have modified or abandoned completely restrictions on civil consumption is indicative that the first panic over supplies has subsided.

Neutral countries were afraid they would be drawn speedily into the war, that their normal sources of supply might be shut off and that defense and internal industry would suffer accordingly. Small European nations feared that a sharp increase in consumption for war purposes in the stronger belligerent nations would sap available supplies from producing nations and leave them pinched for internal peacetime requirements.

Adjustments have been necessary in meeting restrictions of marine transportation but oil-company export departments say they have been able to overcome such obstacles without serious delay by routing American-flag tankers into unrestricted territory and replacing them with foreign-registered vessels.

Some of the smaller nations with liberal policies governing minimum petroleum stock requirements moved rapidly in corrective measures when war was declared. In requiring private companies to stock sufficient supplies to meet longer terms, usually not more than 90 to 180 days, governments have subsidized private companies in several ways either by outright grants, materials, labor, or by adjusting import duties to defray costs incurred.

On War Developments



The 18,100-ton S.S. E. J. Henry, new addition to Atlantic's tanker fleet in Philadelphia-Texas Gulf service

While the tendency in recent weeks among neutral European nations has been toward modification of restrictions on private consumption, the converse is true in Great Britain, France, Germany, and Russia. Effective January 1, Great Britain placed agricultural consumption under a rationing system. During the past 4 months of warfare British agricultural consumption was permitted unrestricted sway since harvesting crops was as much an emergency as airplanes and ships. With crops harvested, however, rural consumption in England is to be restricted.

May Stiffen Restrictions

Hints have appeared in recent questions and answers of cabinet ministers in the British Parliament that indirect restrictions on private consumption may be tightened through an increase of motor-vehicle taxes. The attitude of the British public favors modification of restraints, but the government has conceded nothing to this clamor. From straws in the wind a further reduction in British petroleum consumption may be expected, at least during the early part of this year; certainly until spring weather permits greater activity of the armed forces on the western front and by fighting planes.

Still another war function restricting movement of petroleum is the British contraband control. Inspection of cargoes by the British at various points fringing Europe limits excessive consignments of materials which might reach the enemy through neutrals. The restrictions imposed on commerce by the British Navy constitute at least one reason why civilian consumption in neutral countries is likely to continue something less than normal for duration of the war.

Although tanker rates in American coastwise trade have nearly tripled since the war started, the rise is not entirely due to a shortage of tonnage.

Insurance rates on coastwise tankers have moved higher by almost an equal ratio because of the greater value of boats. The current cost of replacing tankers in the United States is probably up 75 per cent from prewar prices. Replacement at any cost in European shipyards is practically out of the question because of the demand for steel and labor in building naval vessels. Insurance and war risk on tankers in trans-Atlantic trade are higher in direct proportion to the danger of the waters sailed. War-risk rates vary from day to day, depending on numerous factors, chief of which is the immediate activity of German submarines and merchant raiders, and the destination of the cargo. Tankers moving to Mediterranean ports, for instance, may obtain war-risk protection for about 1½ per cent of the cargo value, while similar movement to mine-infested waters would require payment of 6 per cent or more.

While the value of tankers has increased materially since war started, owners have not been uniform in insurance policies so far as hull protection is concerned. Some owners have insured their boats at values almost doubled and consequently have paid higher rates. Equally good boat operators have preferred to pay rates on subvalues if their vessels are used outside of particularly dangerous waters.

In addition to the war-risk rates applying to trans-Atlantic cargoes ranging from 1½ to 6 per cent of value, the average marine-peril insurance rate is about 20 cents per $100 value of the cargo.

Over and above the higher operating costs of tankers due to higher wages for crews and insurance, wartime operation has had the net result of reducing the tonnage available for movement of petroleum. The convoy system of moving tankers through dangerous waters is a slow process, and even the relatively slow speed of tankers is further reduced.

Tonnage Loss Is Insignificant

There have been a few tankers sunk and damaged by mines and submarines, but the losses in tonnage have been insignificant in comparison with the total available in the world. Consequently, the snug fit of transportation demands and the boats available is more a result of the indirect influences of war than direct hostilities. Wartime requirements have compelled boat owners to readjust the normal routes of their tonnage and in some instances, vessels are not particularly adapted to the services for which they are now engaged. This has a tendency to reduce the overall efficiency of the world's tanker fleet, and consequently rates have climbed in response to these conditions.

American petroleum interests, dependent upon the open charter market for their requirements, report no insurmountable difficulty in obtaining boats whenever needed. However, the existing high rates have doubtless tended to reduce the activity of operators on the North Atlantic Coast and they are inclined to conduct the current business on a hand-to-mouth basis, hoping that boat owners will be unable to maintain their present-rate position. This attitude on the part of distributors is exerting a depressing influence on the Gulf Coast market for products, which is gradually growing more pronounced so far as gasoline is concerned.

SPARKS . . . FROM THE NEWS

STRONG LUBRICANTS: Because the market for quality lubricants is strong Pennsylvania Grade crude oils the first of the week advanced to the highest levels since 1930 except for a brief period in 1937.

WATCHFUL: It is being said that our Government's casual attitude toward Mexican expropriation is being closely watched by other Latin-American countries. A firm stand now may save international embarrassment later.

GUESSERS: This is the open season for prognosticators, and many have ventured opinions as to what 1940 holds for the oil industry. What we wish is that some hardy crystal gazer would hazard a prediction that the year will be a **profitable** one. And it can be, if the industry wills it.

SHORT CUT: Still in the rumor stage is the intelligence that a new pipe line is proposed between two international ports—a line that will save a 2,000-mile water haul. It's not unlikely that 1940 will equal 1939 in new pipe-line mileage.

REVIVAL: The Lima, Ohio-Indiana area, a boom section 30 to 50 years ago is being gone over in the belief that it has important oil reserves yet to be discovered.

UNBROKEN LINES: The Mid-Continent crude-price line, like the Maginot line, was not broken during 1939. A host of producers hope it will be penetrated on the upside in 1940.

IMPETUS: If history repeats itself (and it always does) the gasoline-consuming aviation industry is on the threshold of a period of intense development, aided by new war and peace demands.

MARITIME: The application of maritime operations to a land-located field is being tried in Louisiana's Chalkley field. A system of artificial canals is being utilized, and the best features of both types of operations are possible of exploitation.

RESULTS: Forest City basin operators point to an oil discovery in Nebraska and gas strikes in Missouri and Kansas to sustain their hopes that continued wildcat exploration in the four-state area in 1940 will be even more fruitful.

CONVINCING EVIDENCE: The refining division lurches into 1940 with 7½ million barrels more of gasoline than it had at the beginning of 1939. Fortunately the statistical positions of the other principal refinery products show improvement over a year ago.

OUTLETS: According to estimates by the Gasoline Pump Manufacturers Association, about 5,500 new service stations and garages are built each year. At the prevailing rate of 3½ pumps per station, this amounts to some 19,000 pumps, or about 20 per cent of all pumps sold.

WAR INACTIVITY: The European war has been outstanding for its lack of activity on most land fronts with the Allies so far supplying increased war needs through the rationing of civilian consumption.

GOOD NEWS: The fact there will be a record demand for domestic crude oil this year is good news to many, including those who drill the wells.

OFF YEAR: Wildcatters ranged far and wide in opening 49 new oil pools in Kansas in 1939, and it was an off year in field operations in that state. They expect to go places in 1940, which looks like a busy year in the fields.

"SAFETY FIRST" IN THE OIL FIELD . . .

Safety is not forgotten even during the heat of an active drilling campaign such as is now in progress in the Salem, Ill., field. This building, located on the main road through the field, is used exclusively for safety meetings. Discussion of safety methods and practices and first-aid instruction have been largely instrumental in reducing the number and severity of accidents in the drilling and producing departments

Present Year May Approach 1937 in Drilling Activity

By HARRY F. SIMONS

INCREASED drilling activity during the past 6 months has brought the total for the year up to approximately 26,750 completed tests and, together with other factors, indicates next year may approach 1937 in number of tests drilled. A decrease of nearly 650 wells below the 1938 figure was shown, but early in the year it was expected that 1939 would see between 2,000 and 3,000 fewer tests drilled than were completed in the preceding year. A projection based on the figures in July would have indicated a total figure for the year of not more than 24,000 tests completed.

An examination of the chart showing cumulative completions by weeks and weekly completions for the United States indicates drilling for the first 5 months of the year was substantially less than during the same period last year. The first week in June saw 1939 activity passing 1938 for the first time, and during the remainder of the year the pace was maintained, a sharp upturn taking place the latter part of November to encourage activity during the early winter. Generally, the peak in drilling completion comes during the summer or early fall, the first week in September being the high point in 1938.

For the year there was an average decrease below 1938 of 10.5 tests completed per week, but during the first 6 months there was a decrease of 44 tests completed per week; the spurt during the latter half showed an average increase of 20 tests completed per week over the latter half of 1938. Continuation at this rate would result in the drilling of approximately 28,500 tests during 1940, a figure exceeded only by the record years of 1920, 1937, 1926, and 1919, when 33,911, 33,075, 29,319, and 29,173 tests were drilled, respectively.

Direct cause of the upturn in the latter part of the year is hard to determine, but it is probably due to a combination of conditions rather than to any single factor. Optimism for the coming year has the same basis: better business generally, greater gasoline consumption, increased demand for crude, and the realization of the effect of the slackening of the drilling pace over the last 2½ years.

Increased Demand Expected

Better business generally has resulted in an increase in the demand for all petroleum products, and gasoline consumption next year is expected to be the highest in the history of the oil industry. During 1939 the consumption of gasoline increased 6 per cent over 1938, and larger increase has been forecast for the present year. The forecast is based on an increase in new-car sales, an increase in the total number of cars registered, and the increased consumption per car which has been taking place during the years when business generally was far from the peak. In addition, the general business improvement caused an increase in consumption of heavier fuels during the latter part of 1939, and indications are favorable for a continued strong demand. Increase in oil burners for heating units and the wide use of kerosene as a tractor fuel have sustained the upward trend of demand for this product.

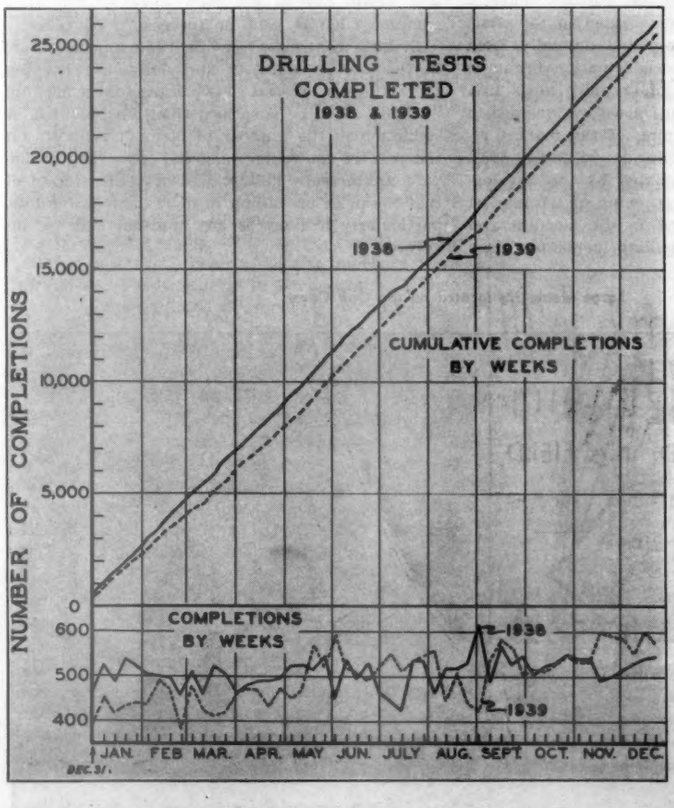
An increase of approximately 6 per cent in crude runs to stills resulted in the production of nearly 1,249,000,000 bbl. of crude and the withdrawal from storage, a result of the shutdown in the late summer, caused a reduction of 35,000,000 bbl. in crude stocks. The expected crude-oil demand for 1940 has been estimated at 6.5 per cent over 1939, or 81,000,000 bbl. Domestic crude-oil production during the past year was 4 per cent, or 48,000,000 bbl., over the preceding year.

Production of 1,330,000,000 bbl. during 1940, a daily average of 3,643,000 bbl., is going to require either the production of more barrels per well or an unusually large number of new wells, a survey of drilling and production statistics over the past 20 years reveals. While the statistics for the year just ended are not yet complete, the number of producing wells at the beginning of 1940 is estimated at 370,000, and each well would have to produce a daily average of 9.8 bbl. to satisfy this requirement.

This is not an impossible figure, each of the 363,000 wells being operated in 1937 producing that amount as an average. However, the daily average production per well has declined to 9.2 bbl. for the past 2 years. This is a reversal of the trend of production, which has been upward with the exception of one period during the past 20 years. (After reaching 8.4 bbl. per well per day in 1929, the production per well and the number of wells decreased for the next 3 years to a low of 6.7 bbl. per well per day from 321,500 wells.)

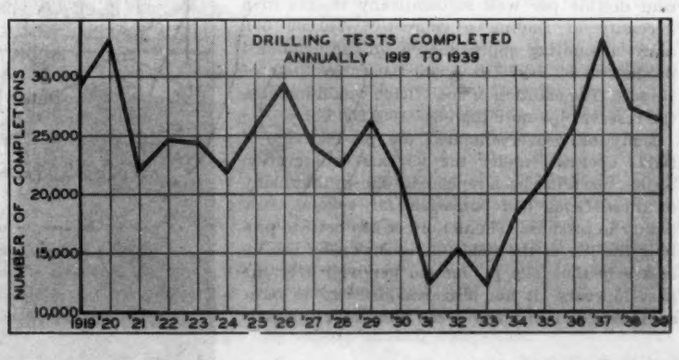
Five-Year Average 9 Bbl.

The average per-well production over the past 5 years has been 9 bbl. per day, and at this rate it would require 404,800 producing wells, a figure impossible of attainment with the drilling machinery now in existence. If the per-well production of the past 2 years is maintained, 396,000 wells will be necessary by January 1, 1941, an increase of 26,000 producing wells during the year now starting. Obviously, the per-well production will have to be raised, and this is probably the greatest incentive



Left: Chart of completions by weeks shows drilling during early months of 1938 was above 1939 but increased activity reversed this trend during the latter part of the year

Below: Chart of tests completed annually shows repeated cycles in drilling activity with the peaks occurring about every 4 years



Mechanical rig making hole in West Texas

to further drilling the petroleum industry can have.

The present situation indicates that there is a finer adjustment between the drilling activities and the marketing situation than is commonly realized and that a decided slump in drilling, over a short period, is felt almost immediately. The drilling moratoriums suggested at times when the markets are weakening could very well have a disastrous effect.

Since 1924, a 16-year period, 363,507 tests have been drilled in the United States, an average of 22,650 tests completed per year. Annually there have been only 3,740 wells added to the producing column despite the completion of an average of 14,000 producing wells each year. During 1938 nearly 27,500 tests were completed, and 19,286 of these were oil wells, but the total number of producing wells actually decreased by approximately 4,000 wells. Nearly 25 per cent of the tests, or 5,600, drilled each year are dry holes, and in addition nearly 10,000 old producing wells are abandoned. The minimum of tests that can be drilled in any 1 year, with the total of producing wells remaining the same, is approximately 14,000, and the difference between this amount and the number of tests actually drilled generally comes close to the increment by which the total "wells producing" column is increased or decreased. Some years are exceptions.

Reach Settled-Production Stage

In addition, each producing well is 1 year nearer depletion and its productive capacity has generally decreased, the flush wells by as much as 75 per cent and the settled production as little as a fraction of 1 per cent. It is apparent from the total number of wells producing that at least two-thirds of them have reached the settled-production stage and are not capable of producing an average of 10 bbl. daily. Advances in production technique and the introduction of secondary recovery will prolong the life of these wells, increase the total recovery, and reduce the requirements that must be met by flush fields and new drilling. A 20 per cent decline per well automatically results in a necessity of finding a source of 740,000 bbl. daily, amounting approximately to the combined production of East Texas and the entire State of Illinois. The addition of such fields would increase the reserves by more than 3,000,000,000 bbl.

Many have overestimated the productivity of fields operated under the various conservation bodies, but it has been repeatedly shown that many of these fields had potentials far beyond their ability to produce. The net effect has been to prolong the life of the fields, as is shown by the increase in the daily production per well over the past 15 years. It has also demonstrated to most operators that in many areas their investment is enhanced by more conservative rates of production. There are numerous fields in the country voluntarily restricted which would not have their production increased if proration were removed. Quicker return of the investment, brought by higher prices or higher per-well allowable, encourages drilling, and most operators anticipate these changes.

Sensitivity to Changes

A study of number of wells drilled annually, crude-oil production, average crude price and average retail gasoline price by years shows how sensitive the producing companies are to these changes. From the turn of the century to the present time the crude production has steadily increased, with the exception of four setbacks, the most notable being the depression period starting in 1929. During the same time, the drilling-activity curve has been one of ups and downs, with the peaks being almost consistently at 4-year intervals. While showing little relation to the crude-production curve, the drilling curve does follow remarkably closely the crude-oil-price curve and the gasoline-price curve and changes in the latter two are immediately reflected by the former. This is probably most clearly demonstrated in the chart showing drilling tests completed annually from 1919 to 1939. In 1929 the crude market began to weaken and drilling fell off rapidly until 1931 when a small price upturn caused an increase in drilling but another softening of the market resulted in a subsequent decline in drilling in 1933. This was the period dominated by the development of East Texas. Strengthening of the market from 1933 to 1937 resulted in the steepest and most prolonged climb in drilling in history but a realization of overdevelopment resulted in another weakening of the market and a decline in drilling. A decline in price also generally results in the abandonment of the marginal wells which can show a profit only at a reasonably good price for the crude.

The decrease in drilling and the increase in the rate of abandonment of old wells quickly affects the supply of crude and ultimately it becomes evident there has been a period of underdevelopment. The change in the trend became apparent early in the fall and was reported in The Oil and Gas Journal for October 19, 1939.

1940 Budgets Made

Oil companies generally have since that time made the budgets for the coming year and mostly they anticipate an increase in the number of wells drilled. Significant is the expression by several of the larger companies that more prospecting is necessary and an active search for new sources of supply may be expected in the states where production has recently been found as well as the older producing areas. Development of fields discovered by prospecting will be a major factor in a drilling increase.

Another encouraging factor is the prediction of more drilling in Kansas which has suffered a decline in demand over the past several years due to loss of markets to Illinois. The Sucker State, on the other hand, may not show an increase in the total number of wells drilled but the average depth will probably increase and rigs will be kept occupied more steadily. New discoveries plus recently completed pipe lines will result in localized development in Texas and Arkansas, and New Mexico also indicates a prospective increase in certain other areas.

The effect of the war in Europe has not been analyzed completely although many admit they expect an increase in drilling because of it. This is probably due to a desire to get wells on production in anticipation of an increase in demand. Some feel that the war will eventually affect both the labor costs and the equipment costs per well and would like to get their development work completed before such an increase takes place.

Drilling contractors, while reporting more inquiries about contracts and deals, are keeping their fingers crossed, one contractor remarking he had rather be surprised than disappointed. A reduction in the number of farmout requests on the part of contractors also indicates they anticipate an increase in work. Most contractors feel that the price prevailing in most areas is too low, particularly if there is any unusual expense involved.

Large steam rig located on the Gulf Coast

Oil Measures on Calendar Await Action of Congress

By HENRY D. RALPH

WASHINGTON, D. C., Jan. 1.—The session of Congress opening this week has many bills on its calendar of special interest to the oil industry, but in general it will be more friendly to business than any of its predecessors for many years.

Oil measures are headed by the Cole bill for federal control of production. The special committee will continue hearings during the early part of the session, and while the administration, certainly Secretary Ickes, will press hard for its approval, there is serious doubt that the measure could get through both House and Senate this session, even with a favorable committee report.

Many other pending proposals directly concerning the oil industry are tied up with the fate of a new tax measure. Last fall it was generally assumed that Congress would attempt to make a rather complete revision of the federal revenue laws, and to this end both the Treasury Department and a special committee of the ways and means committee made an extensive review of the present laws and proposals for revision submitted by industrial groups. The political dangers of attempting to write a tax bill in an election year, however, seem to have offset the desire for removing many of the business irritants from the revenue structure, and unless a serious attempt is made to bring the budget more nearly into balance through additional revenue the chances are slightly against tax legislation this year.

If the question is opened there will undoubtedly be discussion of proposals for changes in the depletion allowance for oil and gas-producing companies, for putting a tax on fuel oil used for heating, and for exempting "alky-gas" from the federal gasoline tax. A general revision would also raise the perennial question of continuing such excise taxes as those on gasoline, lubricating oil, and transportation of oil by pipe line.

Also tied up with revenue legislation is the Patman chain-store tax bill which would levy a prohibitive tax on the operation of interstate merchandising chains with certain exceptions for filling stations. Advocates of this measure were promised a hearing early in the session, at a time when it was assumed this hearing would be part of general tax-revision hearings and that the proposal could be quietly squeezed out in writing a revenue bill, but fulfillment of this promise may mean special hearings on the measure with consequent greater pressure on Congress for its consideration. Supporters of the chain-store tax bill are understood to have prepared a number of amendments, mostly concessions to the opposition, but including one to impose the tax on all filling stations handling accessories of any kind on any products other than gasoline and lubricating oil.

STILL pending in committees are bills to establish the claim of the federal Government to oil deposits under offshore tidelands of California; to divorce pipe lines from ownership by major companies; and to divorce major oil companies from marketing operations. The first of these is unlikely to receive any further consideration, and, even if the divorcement measures get out of committee, it is unlikely Congress will take them up unless the Temporary National Economic Committee endorses them in a report on the oil-industry hearings held during the fall.

An omnibus transportation bill extending the powers of the Interstate Commerce Commission over all forms of transportation has passed both houses in different forms and a conference committee is due to recommend a compromise at an early date. Among other things this bill would give the I.C.C. more authority over privately owned trucks and over barge transportation.

The law under which reciprocal trade agreements are made will expire in June and the administration plans to make a determined fight to have it extended. This will cause a major political battle in Congress, but failure to extend the law cannot affect the status of existing agreements unless Congress specifically abrogates them, so the Venezuelan agreement would remain in effect with its reduction in the import tax on crude and fuel oil and its pledge against any further taxes on imports of petroleum products.

Relations with Japan will come to a head shortly, as the U. S.-Japanese commercial treaty expires January 26, and the State Department has given no indication that a new one will be negotiated in the near future. A modus vivendi may be agreed upon under which Japan will continue to receive most-favored-nation treatment, but this would not bind Congress against discriminatory legislation, and there may be attempts to secure action on the several proposals to embargo exports of petroleum and other products to Japan which were pending in the Senate committee on foreign relations last summer.

The administration has discovered an executive order by President Grant in 1872 which apparently is still in effect guaranteeing Japanese shipping the use of American ports on an equal basis with American vessels, so that as long as this order stands Japanese tankers and other vessels will not be assessed "light moneys" and other discriminatory taxes which old statutes provide for vessels of nations not exempted by treaty or otherwise. This order, however, may be revoked at any time by the president or by Congress, and the expectation is that anti-Japanese measures will receive considerable discussion in the Senate.

DIPLOMATIC relations with Mexico may also be debated in Congress because of impatience in certain quarters with the failure of the administration to make stern protests to Mexico over the expropriation of American-owned oil properties, recently confirmed by the Mexican Supreme Court.

Stream-pollution legislation is slated for early consideration in the House. The Senate has already passed a bill for federal surveys and cooperation with states and without any penalties on oil companies and others permitting polluted matter to reach navigable streams, and a House committee has favorably reported this measure. Wildlife enthusiasts and others seeking a more drastic law blocked action at the last session, but the Senate measure is expected to be enacted.

Labor legislation will also receive prominent consideration during this session. Revision of the Wagner Labor Relations Act may be avoided by changes in personnel and rules of procedure of the National Labor Relations Board. The special House committee investigating the N.L.R.B. has only started a series of hearings which have already indicated considerable antiemployer prejudice among certain board officials. Both House and Senate committees are working on bills to revise the Wagner Act, but, because of political considerations it is quite likely these will not be acted on if it appears some of the causes of complaint may be removed through administrative action, and at present the most likely prospect appears to be legislation to get rid of the present board through creating a new one of five members and by making changes in the board's procedure rather than in the basic provisions of the law.

A bill to revise the Wage and Hour Act was close to a vote in the House when the regular session adjourned, and undoubtedly will come up soon. Amendments most likely to be enacted would exempt from the hours provision "white collar" workers receiving a stipulated monthly salary, say $200 per month, but a great many other changes have been proposed. A bill to put more teeth in the Walsh-Healey Government Contracts Act passed the Senate, but chances of final enactment are slim.

Some antitrust legislation may receive consideration, although major revision of the law will await final recommendations, if any, of the T.N.E.C. Thurman Arnold is asking for a considerable increase in appropriations to enable the Antitrust Division to hire still more men to make still more investigations, and very much wants passage of the O'Mahoney-Hobbs bill to increase civil penalties for antitrust violations, particularly through heavy fines on officials of corporations violating the law. Senator O'Mahoney probably will press for action on this measure, and it is understood its advocates are willing to modify some of its more drastic penalties in order to save the principle of making corporate officials responsible for the actions of their companies.

1939 INDEX

The Oil and Gas Journal Index of principal articles published in 1939, with crossindex of authors, will be found of encyclopedic value. It covers every phase of oil-industry information and activity during the past year and starts on Page 91 of this issue.

Prospects of Lima-Indiana

By SAMUEL W. TAIT, JR.

THE Trenton limestone field of northwestern Ohio and northeastern Indiana has produced as much oil as some conservative estimates of the recoverable reserves of the new fields of the Illinois basin, and in contrast to the multisand fields of the latter state, the production of the Lima-Indiana field has come almost entirely from one sand. Yet nearly every important pool in this field was opened during the period from 1885 to 1905, and since then the field has had to subsist chiefly upon the discoveries of the original wave of pioneering wildcatters that, arising in Pennsylvania, West Virginia, and eastern Ohio, washed across it on the way to break upon the rich shore of the Mid-Continent.

Currently another attempt is being made to revive the area. For more than 2 years a major company has been endeavoring to find a deeper producing horizon in or below the 600 ft. of Trenton section on the Ohio side, and on the Indiana side numerous independent operators, most of them from Kansas or Oklahoma, are either testing or preparing to test blocks of acreage ranging in size from a few hundred to several thousand acres. The scouts of major companies are becoming conventional features of the byroads and county recorders' offices of both states. But whether the present attempt to pump life into the field will be more successful than those of the past depends upon factors, historical as well as geological.

The original discoveries of oil in this bistate field occurred almost simultaneously in Wood and Hancock counties, Ohio, during 1885-86 as incidents in the search for gas. In the succeeding two decades the field spread in a southwesterly direction till it reached halfway across the State of Indiana.

As Fig. 1 shows, the productive area is entirely upon the Cincinnati arch, which, entering Ohio from Kentucky, trends northward to Ontario, with a broad nose crossing into Indiana. What no map can show, however, is the nature of the field, which is structural to only a minor degree, being primarily a matter of porosity. The discovery wells near Lima, Findlay, and Bowling Green, after passing through glacial drift, some 400 ft. of Silurian limestone, and about 750 ft. of Silurian and Ordovician shales, entered the Trenton limestone, also of Ordovician age.

Porous Stratum

From 15 to 20 ft. in this formation, these wells encountered a porous stratum, varying in thickness, which upon analysis turned out to have been dolomitized, and the original calcium carbonate partially replaced by magnesium carbonate. At some places the bit, after entering the Trenton, gave the impression of falling which drillers habitually regard as encountering a crevice, but which probably indicated only the presence of an erosional unconformity near the top of the formation, resulting in many cases from action by ground water while the Trenton was above the sea. While some geologists have assumed that accumulation may be accounted for by minor anticlines, noses, and terraces upon the great regional arch, there is little in the most reliable records from the more productive parts of the field to support this assumption. On the contrary, practical experience as well as what geological investigation took place during the early development support the theory that while the Cincinnati arch was indispensable to the accumulation of oil, the local presence of particular pools is to be explained chiefly by this dolomitization and erosion by ground water.

Cheapness of drilling and operation were considerable factors in extending the field to a length of 150 miles and an occasional width of 20 miles. Casing programs in that early day were dictated solely by the presence or absence of water in upper formations, and the operators here soon concluded that as there was no water to be found below the Silurian limestone, from 350 to 450 ft. of 5⅝ or 6-in. casing, along with sufficient 8-in. drive pipe to get through the drift, was all the pipe needed for a Trenton-rock well. Since the 600 to 700 ft. of shale below the casing point "stood up" well enough not to crush the tubing, they never considered how many shale cavings gradually fell into the hole and impaired the efficiency of pumping.

Operation Inexpensive

Similarly, operation was found to be quite inexpensive, but principally because it was equally indifferent to long-term results. Not only was the gas pressure dissipated in the best parts of the field, but the wells were chronically overproduced at a rate which caused paraffining of the face of the producing formation, so that no methods of cleaning out known to that day were effective in stimulating recovery. Had operation been in keeping with today's scientific knowledge, gross running costs would have been higher because cleaning out would have been a frequently recurring item, but no doubt the increased costs would have been more than offset by added recovery, and many thousands of wells now abandoned would still be in operation. In fact, this is evidenced by a small pool in Penn Township, Jay County, Indiana, drilled after 1910, where careful pumping and study of the individual characteristics of each well has resulted in a sustained recovery over long periods which is in striking contrast to the records of many leases drilled prior to that time.

Along with these early drilling and operating methods went an 1885 style of geology which, except for the painstaking work of Edward Orton in Ohio, consisted solely of the collection of records without regard to surface elevation and in many cases even of exact location upon particular farms. In Ohio the first defect, if it ever existed, has been cured by the splendid system of topographical maps of the U. S. Geological Survey, which covers the entire state. The inadequacy of farm description remains largely incurable, and to this day oil men try vainly from the data in state bulletins to locate wells drilled years ago. The development of the richer parts of the field occurred too early to benefit much from petroleum geology, and the following treatment of it is, in fact, the first attempt to point out that it is not uniform, but may be divided into areas, as shown in Fig. 2, which

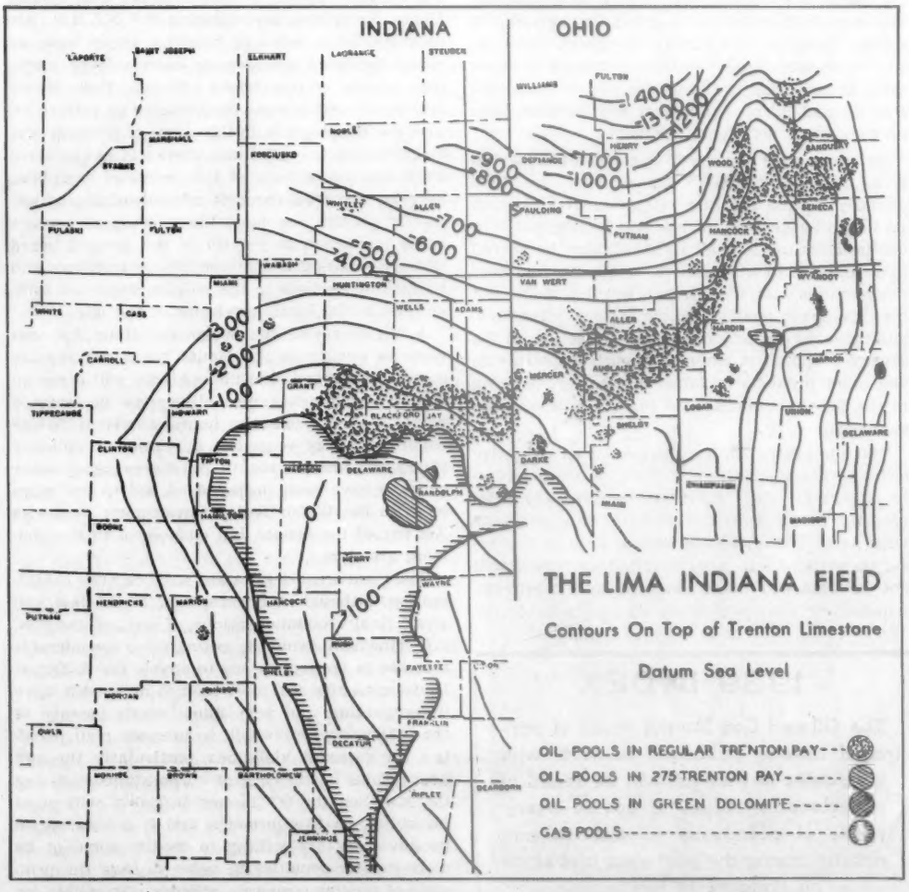
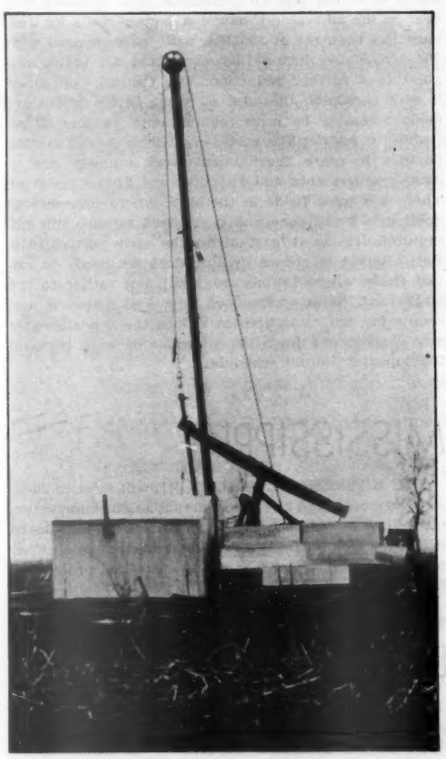


Fig. 1—The productive area is entirely upon the Cincinnati arch, as shown in the map

Field

are clearly distinguishable by geological and historical features.

Area 1.—This is the district of maximum productivity, as it is that of maximum porosity. Though no reliable figures exist as to the thickness of saturation generally over this area, it must have been considerable, and the producing stratum, instead of being of the minimum 20 per cent magnesium carbonate content necessary for production, must have approached a true dolomite. Porosity or saturation or both obviously decreased toward the southwest, as the size of the larger wells graded rather evenly from the 1,000-3,000-bbl. initial producers of Wood County into the 300-400-bbl. wells of Allen County and so on into the 50-250-bbl. producers of Indiana, though the average first day's production of the wells of each section was much less than these figures. Initial production, however, matters very little in relation to total yield of the field, as this total came mainly from some 40 years of pumping after the wells had settled down to daily productions ranging from 5 down to ½ bbl.



Drilling machines and spudders have replaced the squat standard rigs which drilled up most of the field. Here a test is drilling in Area 3, Randolph County, Indiana

It is precisely this area, at least on the Indiana side, which is receiving most of the attention from outsiders, and yet for several reasons this is the area which might more accurately be considered as condemned for further development than any other part of the Lima-Indiana field. From recent investigation and a memory of almost 40 years, I can attest that this section is probably as completely drilled up as any within an extensive American oil field. My father opened some of the richest and most lasting parts of Wood County in the 1890's, and later a number of the better pools on the Indiana side, selling out as did most discoverers of that time to the Ohio Oil Co., which eventually secured nearly all of the producing properties in the bistate field. There is hardly a producing farm, past or present, from Toledo, Ohio, to Marion, Ind., of which I haven't heard, and with many of them I have a derrick-floor acquaintance. Three years ago I copied the only existing major-company maps of parts of this area, added to the copy from family and personal memory, and then sat down to see what the district actually looked like. What I saw was an area with hardly a square mile in which at least one well had not been drilled, and where such a section did exist there were invariably good surrounding reasons why one should never be drilled there.

Gas Pressure Dissipated

Further, the gas pressure in this area has been dissipated, as already set down; there is no important water drive to compensate for this loss; and the porous stratum here seems to have been so connected that a waste of pressure affected more than the immediate territory.

Hence it seems clear that whether or not there is much oil remaining here, the few thousand wells on the Ohio side and the few hundred in Indiana, in both states now averaging about ½ bbl. each, are likely to secure all the recoverable oil in Area 1.

Area 2.—This section follows the inside lines of what might be termed the finger of the Ohio Cincinnati arch and the Indiana thumb of the same great structure, as a comparison of Figs. 2 and 1 will show. It is an area where less accumulation took place than in the preceding one, and being downdip it has little or no gas, and the only apparent possibility of finding paying wells here lies in a water drive from the general direction of the Michigan basin. A case in point is production in Salamonie Township, Huntington County, Indiana, where wells were abandoned early in the century when the gas was exhausted. Almost two decades later a second drilling took place there, and commercial production existed for some time despite the utter lack of gas and increasing quantities of salt water.

Trenton Formation Pay

Area 3.—This is not only the area of the Indiana gas belt, which extends a few miles into Ohio, but it contains the only commercial deep-pay pool found to date in the Trenton formation; to wit, that which straddles the Delaware-Randolph County line. In the latter, gas was usually present at the regular producing horizon from 15 to 20 ft. below the top of the Trenton, and oil was encountered from 275 to 285 ft. below this top. Unfortunately, water was frequently found between the gas and oil pays, as well as by too deep penetration of the latter, and as no more casing was used here than in other Trenton wells of the time; and as methods of plugging off bottom-hole water were primitive and ineffective, production soon became costly and before many years impracticable. The large initial size of the wells and their early sustained yield, however, have created a legend about this deep pay which has both caused it to experience a short-lived secondary development and sent wildcatters searching for it in all directions from the pool. So far, the only showings of oil at this depth are to the east of the abandoned pool, and the fact is undoubtedly noteworthy that all these indications are either in or in the edge of the gas belt wherein the 275-ft. zone produced oil. Geologically, very little exact information is available about this pool, for in neither of its periods of development did it receive much attention from geologists. There is probably no authentic sample of the sand of the

(Continued on Page 24)

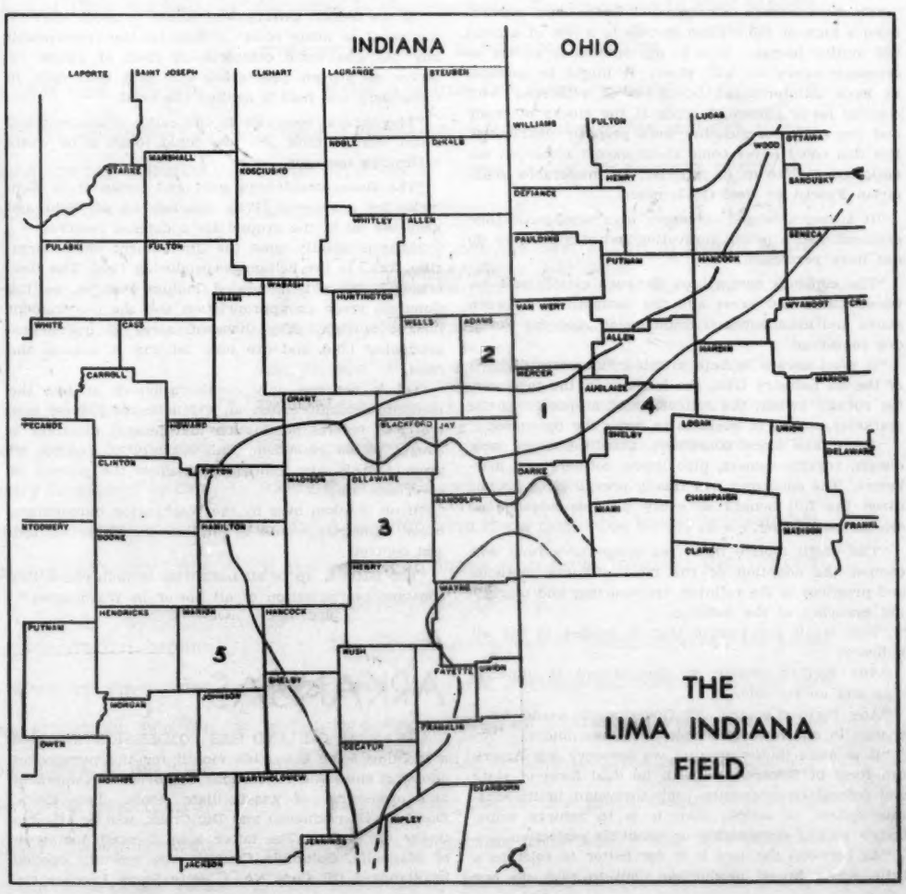


Fig. 2—Five distinct areas, clearly distinguished by geological and historical features, are indicated in this map

STATE CAPITALS

TEXAS

CHAIRMAN LON A. SMITH, of the Railroad Commission, announced Monday the monthly state-wide oil proration hearing would be held January 18 to receive evidence on which to base February allowables.

How field schedules should be revised in the commission's contemplated action in abolishing shutdowns next month probably will prompt discussion by operators. It is not likely that results will be announced at the hearing of a survey being made by the commission's engineering staff of schedules as a possible basis for the proposed revision.

With the commission pledged to stay within the Bureau of Mines market-demand estimate, severe cuts in field allowables from current basic schedules will be necessary.

A WASHINGTON DISPATCH says Secretary Ickes reported to the president that the Petroleum Conservation Division reviewed almost 5,000 applications for tenders to transport oil out of Texas during the year.

The division "continued its vigorous administration of the Connally 'Hot' Oil Act" throughout the year, the secretary said in his annual report.

Mr. Ickes told the president the division had made several investigations during the year in the East Texas area and that one examination surveyed the oil-proration procedure in Arkansas, Kansas, Louisiana, New Mexico, Oklahoma, and Texas to determine how such procedure affects administration of the Connally Act.

Recalling that staff members of the division had testified before legislative committees in California and Illinois, Mr. Ickes said it was "to be hoped that cooperative relationships can be established with those states and others to further the conservation and protection of our great natural resource of petroleum."

FOLLOWING ARE EXTRACTS from a statement issued by Ernest L. Thompson, chairman of the Interstate Oil Compact Commission and member of the Railroad Commission of Texas:

"The oil industry is going into the new year 1940 with the best prospects it has had in many years.

"Stocks of crude aboveground have been reduced from a high of 450 million barrels to a low of around 230 million barrels. This in my opinion is as low as economic operation will allow. It might be possible to have uninterrupted operation of refineries with slightly lower stocks of crude if the stocks of crude and the stocks of gasoline were properly distributed. But this could never come about except under an undesirable, and to us in America, an intolerable totalitarian Fascist or Nazi Government.

"It is desirable and necessary in a democratic Government, and a profit motivating industry that we do not have perfection.

"The constant competition between crudes and between fields and areas and the competition between states and even between countries is good for everyone concerned.

"It must always be kept in mind that every division of the oil industry from the landowner, the producer, the royalty owner, the refiner, the transporter to the marketer are all in business to serve the consumer.

"There are more consumers than there are producers, royalty owners, pipe liners, refiners and marketers. The consumer will finally prevail if he be not given the full benefit of every possible advance of science and saving.

"The profit motive in a free competitive field will compel the adoption of the most efficient methods and practices in the refining, transporting and marketing branches of the industry.

"This is all the control that is needed in the oil industry.

"Any further control by Government is unnecessary and undesirable.

"Any further control by Government would be a change in our form of democratic Government.

"It is more important that we preserve our American form of Government with its dual form of state and federal Governments, each sovereign in its separate sphere of action, than it is to achieve somebody's idea of engineering or scientific perfection.

"As between the two it is far better to tolerate a little waste in oil production than to give up our freedom of our sovereign states to control their production within their own state borders.

"The waste can be finally prevented, but once our state sovereignty is surrendered—even one iota—we have forever lost the most precious thing on earth to the citizens of our sovereign states.

"I do not admit that the federal Government could do any better job of preventing waste in oil and gas production than the states are doing.

"The states are fast learning how to prevent physical waste. Those states who do not now have waste-prevention laws will soon have them. Informed public opinion within the states will compel it. That is a task of education within the states. Abuse will not do the job.

"The whole science of producing oil so as to prevent avoidable waste is new. We should not get all in a dither over such a newly discovered and highly controversial science or technique.

"If the federal Government thinks it needs some oil for naval or army reserves then let the Government buy outright some complete oil field of ample reserves of proven production and shut that field in completely and hold it against the need.

"The natural reservoir in the earth is the best and safest storage tank. No one could touch it or waste it through the ages.

"The Government buys gold and buries it in Kentucky for a reserve. Why not buy an oil field and keep the oil in the ground for a defense reserve?

"That is exactly what the Government did at Amarillo, Tex., in the helium-gas-producing field. The Government thought it needed helium reserve, so the Congress made an appropriation and the Government bought outright fifty thousand acres of helium-gas-producing land and are now holding it against the need.

"Oil is not the only consideration—it is just the medium through which an extension of federal control and federal domination and federal dictation is sought to be extended. This attempt to control oil production is just another raid upon the powers of sovereign states.

"If oil is taken over by the Washington bureaucrats, other industries would be in line thereafter for federal control.

"The issue is up to all industries to help check this constant centralization of all power in Washington."

ARKANSAS

ARKANSAS OIL AND GAS COMMISSION will hold a meeting some time this month for the purpose of adopting rules and regulations to govern development and production of gas-distillate pools. Two fields, Dorcheat (Experiment) and Big Creek, will be affected under the order. The latter area, located northwest of Magnolia, Columbia County, was recently opened by Standard Oil Co.'s No. 1 Petty Stave Lumber Co.

KANSAS

THE KANSAS CORPORATION COMMISSION is preparing its allowable production schedules for January. It is expected that the commission will stay close to the Bureau of Mines estimate of demand for Kansas crude, which is 160,600 bbl. per day, or 7,400 bbl. per day below the bureau's December estimate.

CALIFORNIA

TO REDUCE THE NUMBER OF DRILLING WELLS the Central Committee of California Oil Producers has appointed C. G. Williams, chairman and R. S. Lytle, E. C. Bolton, R. D. Montgomery, William Keck, Jr., Victor Wilhelm, and R. I. Brown members of a committee to conduct a survey of the past work and make a study of contemplated drilling in 1940. This committee is empowered to devise ways and means of reducing operations in 1940. The California oil industry has begun to realize that the resistance point is somewhere near as the allowable production for top wells for January has been set at 195 bbl. daily as compared with 204 bbl. daily during December, and all indications point to a further reduction. The Central Committee is of the opinion that not all wells being drilled are made necessary by lease requirements. Despite all attempts to restrict the scope of drilling it will be impossible to cease development work entirely due to lease requirements and the drainage factor involved. There are some fields in the state where unnecessary drilling is being done and it is hoped to curb this unrequired drilling at least during the early part of 1940. This attempt to reduce drilling does not apply to settled fields where initials are small, but rather to the large flush fields where each new well makes it necessary for the committee to reduce the top allowable and likewise cut down the allowable of wells between the top and bottom schedules.

MISSISSIPPI

THE MISSISSIPPI LEGISLATURE will meet in Jackson this month, and it is expected that an oil-conservation bill will be introduced. The Meridian Real Estate Board held a meeting on December 30 and adopted resolutions opposing any measure that would curtail oil production in the state.

LOUISIANA

THE EOLA FIELD, Avoyelles Parish, has been placed on a new production allowable basis by engineers of the Louisiana Department of Conservation. On the new schedule, 50 per cent of production is allowed on the basis of potential, and 50 per cent on an acre-pound basis, determined by the acreage and bottom-hole pressure of each producer. An automatic cutback of allowed production applies to wells making gas in excess of the ratio of 2,000 cu. ft. per barrel of oil. Under the new order, a 20-acre spacing rule applies to the field, with new locations placed in the centers of the 20-acre units with few exceptions. Allowable production for January has been increased to 7,300 bbl. daily, compared with 5,952 bbl. daily during December. Average potential for Eola wells is 650 bbl. through a ¼-in. choke, with actual potentials ranging from 422 to 757 bbl.

BASED ON THE ALLOWABLES fixed by the state Department of Conservation for each month, total production of Louisiana for the year was estimated at 93,115,773 bbl. This amounts to about 25,000,000 bbl. more than produced in 1938 and about 30,000,000 bbl. more than produced in the year before.

Production for the whole state, as figured by The Oil and Gas Journal, generally was slightly above the Conservation Department's allowables, indicating the total production was somewhat higher.

Principally responsible for the greatly increased production in 1939 was the discovery of 20 new fields in 1938, the addition of 15 new fields in 1939, and important extensions of fields.

the OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

A 1940 Slogan

"Adequate Profits!" should be the slogan of the oil industry for 1940.

Properly applied, this objective would mean the ending of many practices which resulted in the unsatisfactory profits of 1938 and 1939, and would establish the industry upon a sound basis for future operations.

The year which has just closed brought an increase in total demand for petroleum products in this country exceeding by more than 90,000,000 bbl. any previous year.

Despite this fact, the profits of major and semi-major units representing more than 70 per cent of the industry were less than they were in 1938 and their 1938 profits were 46 per cent less than those of 1937, the best depression recovery year.

Considering the fact that both 1938 and 1939 witnessed substantial increases in demand for the industry's money product—gasoline—the earnings are not a record to be proud of, as those with capital invested have pointed out from time to time.

Many other industries, some of them faced with a large decrease in demand for their products, have made better showings.

In retrospect, it is easy to point to what was wrong from the profit angle last year. There was a continuing tendency in all branches of the industry to exceed in production the very satisfactory increase in consumption.

The net result for the year was unsatisfactory price levels in the principal markets.

While the record in the crude-producing branch was better than in 1938, it took the 2 weeks' emergency shutdown in August to correct the statistical position brought about by excessive operations earlier in the year.

As the year closed, practically all the reductions in crude inventories were accounted for by the withdrawals during the shutdown period. Toward the close of the year crude production was expanded rapidly and there were substantial additions to inventories in December.

Refiners ran 75,000,000 bbl. more crude to stills in 1939 than in 1938. As revealed by price trends during the year and the accumulation of gasoline stocks in recent months these runs to stills were at least 25,000,000 bbl. in excess of what they should have been.

These excesses in crude production and refinery output are the basic explanation of unsatisfactory price trends which, in turn, were responsible for low earnings.

The industry is starting the new year with an assured increase in demand which may total as much as the gains in the past year. This increase in itself cannot give any assurance of enlarged earnings.

While it is true that these consumption gains are largely a reflection of the ability of the industry to sell better products at lower prices, inadequate profits are dangerous to all concerned.

The industry has the best record in regard to salaries and wages. Its wholesale price index number is 52, compared with 76.7 for all commodities. It has expanded all phases of its operations regardless of conditions. Proven reserves which are the consumers' guarantee of future petroleum supplies at reasonable prices are greater today than they have ever been.

A reaction from these desirable trends is inevitable, if the returns to those who have invested their capital continue to be unsatisfactory.

The needed advances in prices received for products are not large. An average increase of ½ cent per gallon in prices received for products this year would add more than 300 million dollars to gross revenues.

The carrying out of this profit slogan starts with maintenance of operating programs in line with demands —not sporadically but consistently through the year.

Domestic Demand Rather Than War 1940 Factor

NEW YEAR statements by prominent oil executives emphasized that the outlook for 1940 depends more upon the increasing domestic demand for petroleum products than any probable purchases by the belligerent nations.

W. S. Farish, president, Standard Oil Co. (New Jersey): "The outlook for next year is fairly good. Earnings should be benefited if Illinois adopts a conservation program, as uneconomic overproduction in that area would be curtailed. The effect of the war is highly problematical, but it now appears unlikely that there will be any broadening in the demand for exports in the near future."

Edward G. Seubert, president, Standard Oil Co. (Indiana): "On the basis of present information it seems logical to anticipate that consumption of petroleum will continue to increase in 1940 and that there will consequently be still more activity in oil fields, refineries, and distributing systems. This should be the case whether war sales abroad increase materially or not, and those sales the oil industry and all the world would be better off without."

Axtell J. Byles, president, American Petroleum Institute: "Industry economists make no predictions for 1940, but point to the unusual nature of the war, the loss of Central European countries as customers, the substantial Asian and South American sources of supply now open to England and France, and to the rationing of petroleum products throughout Europe as evidence that the war may continue to have little effect on the United States petroleum trade in 1940."

Robert H. Colley, president, Atlantic Refining Co.: "Looking forward over the coming 12 months, current expectations are that domestic demand for petroleum products in 1940 will approximate 1,163,000,000 bbl., an increase of 73,000,000 bbl. over the 1939 record year. The outlook for export demand remains cloudy, but the indications are that the major part of the expected increase in the industry's operations will be for domestic rather than foreign consumption. All in all, the petroleum industry is in a moderately good position to share in the increase in national prosperity which everyone hopes is on the way."

Col. T. H. Barton, president, Lion Oil Refining Co.: "If the petroleum industry can reduce its operations to moderate levels we have every reason to believe that 1940 will be a highly successful year. However, a continued overemphasis on war demand, with its resulting overproduction, might interrupt the normal upturn anticipated from increased domestic activity."

First Quarter Gasoline Gain Five Per Cent

THE daily average supply of domestic crude oil estimated by the Bureau of Mines to meet the market demand in January 1940 is 3,569,700 bbl., 50,000 bbls. (1 per cent) less than the estimated demand for December but 7 per cent more than the actual demand in January 1939.

Daily average crude-oil production and runs to stills during the 4 weeks, November 4 to December 2, were 3,624,000 and 3,510,000 bbl. respectively. During this period total crude-oil stocks increased 2,713,000 bbl., 789,000 bbl. of which was in foreign stocks, leaving a net increase in domestic stocks of 1,924,000 bbl., or 69,000 bbl. daily. The subtraction of this stock increase from the production indicates that the apparent demand for domestic crude oil during the period was 3,555,000 bbl. daily, compared with 3,620,000 bbl. estimated by the bureau.

Market trends and estimates indicate a probable increase of about 5 per cent in total motor-fuel demand and at least a 10 per cent gain in distillate fuel-oil demand for the first quarter of 1940, compared to same period in 1939.

ESTIMATED DAILY AVERAGE CRUDE-OIL DEMAND BY STATES (Barrels)

(As no changes in crude-oil stocks are involved in these estimates, they represent demand rather than production)

State—	Forecast— Jan. 1940	Forecast— Dec. 1939	Actual Jan. 1939
Texas	1,411,000	1,438,100	1,350,000
California	593,900	594,500	608,000
Oklahoma	433,900	437,600	467,000
Illinois	314,800	315,200	139,000
Louisiana	254,200	255,200	261,000
Kansas	160,600	168,000	152,000
New Mexico	101,900	110,000	123,000
Michigan	61,000	61,000	47,000
Arkansas	59,700	56,100	48,000
Wyoming	58,700	60,000	34,000
Pennsylvania	51,900	50,000	42,000
Kentucky	12,900	16,100	15,000
Montana	15,400	15,200	19,000
New York	13,900	15,200	14,000
West Virginia	10,000	10,000	9,000
Ohio	8,100	8,100	11,000
Indiana	3,900	5,200	2,000
Colorado	3,900	4,200	6,000
Total	3,569,700	3,619,700	3,347,000

In recent months large runs to stills at relatively high gasoline yields have resulted in an abnormal seasonal increase in gasoline stocks. Distillate fuel-oil yields have not been increased sufficiently to build up stocks to an adequate seasonal level in proportion to increased demand. Consequently, runs will probably be at a level that will result in at least the usual further increase in gasoline stocks during the first quarter.

Present indications are that the stocks of finished and unfinished gasoline will approximate new peaks of 80 million barrels on December 31, 1939, and 95 million barrels on March 31, 1940. Any correction of these stock levels will depend primarily on weather conditions and on maximum distillate yields. The bureau's forecast of runs for the first quarter, at about the estimated level for January, is based on the assumption of a possible average distillate yield of about 1 per cent higher than the actual for the first quarter of 1939.

Due to unfavorable exchange and shipping conditions, no large increases in export demand are indicated yet. Compared to a year ago, exports of lubricants may materially increase and a possible decrease in exports of regular-grade gasoline may be balanced by increased shipments of aviation gasoline.

Motor fuel.—The estimated domestic demand for motor fuel is 39,500,000 bbl., or about 5 per cent more than the actual demand in January 1939. Motor-fuel exports have been estimated as 3,800,000 bbl., 800,000 bbl. less than the estimate for December, but 160,000 bbl. more than the actual for January 1939.

Stocks of finished and unfinished gasoline on October 31 amounted to 73,319,000 bbl., which represented an increase of more than 2,300,000 bbl. during October and establishes a record high for stocks on that date. A.P.I. statistics indicate that stocks increased 3,250,000 bbl. during November, bringing them to about 76,600,000 bbl. as of November 30. These stocks are considerably higher than are necessary and may prove burdensome before the winter is over. However, the bureau estimates that finished gasoline stocks will increase 7,300,000 bbl. in January, compared with about 7,900,000 bbl. in January 1939.

Gasoline production.—Benzol and direct sales of natural gasoline have been estimated as 1,050,000 bbl., making refinery production 49,550,000 bbl. This is distributed among the various districts as follows (thousands of barrels): East Coast, 6,380; Appalachian, 1,910; Indiana-Illinois, 9,030; Oklahoma, 2,890; Kansas-Missouri, 2,470; inland Texas, 3,630; Texas Gulf Coast, 13,290; Louisiana Gulf Coast, 1,520; inland Louisiana-Arkansas, 850; Rocky Mountain, 1,280; California, 6,300.

Runs to stills.—Natural gasoline to be blended at the refineries is estimated as 7.2 per cent of the total gasoline production, or 3,570,000 bbl. The yield of straight-run and cracked gasoline is estimated as 44.1 per cent. The application of this yield to the production of 45,980,000 bbl. of gasoline gives crude runs of 104,310,000 bbl. or 3,364,800 bbl. daily. Foreign-crude runs are estimated as 2,300,000 bbl.

Exports of crude oil are estimated as 5,750,000 bbl. The estimate for fuel and losses is 2,900,000 bbl.

The total demand for domestic crude oil in January 1940, as indicated by the estimates, is 110,660,000 bbl., or 3,569,700 bbl. daily.

California Gasoline Tax Reaches New High

SACRAMENTO, Calif.—Income from California's gasoline tax promised to reach an all-time high in 1939, it was indicated in a report prepared by the State Board of Equalization.

The tax for November was assessed against the distribution of 154,277,430 gal. of gasoline for a net income to the state of $4,628,322.90. This represented a gain of 12.37 per cent over November, 1938, when the tax amounted to $4,118,812.05, or $509,510.85 less. As a result it appeared assured the total for the year would exceed that of 1938 when an income of $51,601,430.04 established a record.

The November total also was slightly in excess of the tax assessed against October sales of gasoline.

Dr. C. M. A. Stine Awarded The Perkin Medal

Dr. Charles M. A. Stine, director of research and vice president of E. I. du Pont de Nemours & Co., will receive the thirty-fourth impression of the Perkin Medal at a joint meeting of the Society of Chemical Industry, American Chemical Society, American Institute of Chemical Engineers, the Electrochemical Society and Societe de Chimie Industrielle, on January 12. The medal is awarded annually for valuable work in applied chemistry. Dr. Wallace P. Gohoe, chairman of the American Section, will preside over the meeting. The program will commence with a commemoration of former medallists by Dr. Gohoe. This will be followed by a talk on the life and accomplishments of the medallist by Dr. Harrison E. Howe, editor of Industrial and Engineering Chemistry. After the presentation of the medal by Prof. Marston T. Bogert, senior past president of the society, Dr. Stine will give the medal address entitled "The Rise of the Organic Chemical Industry in the United States." The meeting will be held at 8 p.m. at the Chemists' Club, 52 East Forty-first Street, New York. A dinner in honor of Dr. Stine will also be held there preceding the meeting, starting at 6:45 p.m.

THE MARKETS*

CRUDE OIL: Production in the United States during the Christmas to New Year week fell off 316,200 bbl. per day to a total of 3,550,350 bbl. Production in Texas declined 282,206 bbl. and California 19,000 bbl., which were the most important changes. Average production in Texas in the 4 weeks ended December 30 was 1,508,257 bbl. per day or 70,157 bbl a day above the Bureau of Mines estimate of demand. Pennsylvania grade crude was advanced 25 cents per bbl. on January 1. The new price affects over 80,000 bbl. of daily production in New York, Pennsylvania, West Virginia and southeastern Ohio.

REFINERY: Gasoline depressed by seasonal factors in addition to mounting stocks and failure of accumulations at the Gulf to move promptly. Plant operations geared to brisk demand for fuel oils is contributing substantially to surplus gasoline. Call for lubricants, wax, and petrolatum continues urgent.

TANK WAGON AND POSTED DEALER: Standard of Nebraska and Standard of Kentucky made minor changes to effect local adjustments.

FINANCIAL: Oil shares did a little better than the week before, but were weak, along with the rest of the list. The oils ended the year with losses slightly greater for the twelvemonth than those of the general market. Average of 30 representative stocks for week ended December 30: High, 26.77; low, 25.59; close, 26.43. Week ended December 23: High, 26.40; low, 25.34; close, 26.03.

International

Japan . .

Dependence on Imports Is Factor in Embargo

ALMOST complete dependency of Japan on external sources of petroleum appears to have been a factor in the recent declarations of the U. S. Department of State on the moral embargo question. Secretary of State Hull failed to mention petroleum products directly among materials which the administration hopes will not be supplied to Germany and Japan.

Behind the omission of petroleum products is a question long studied by economists and strategists familiar with the Japanese situation. There can be no doubt that petroleum constitutes one of the weakest links in Japan's economic structure, and is probably the greatest remaining barrier to her drive for self-sufficiency within the yen-bloc area. That the government has recognized this fact for many years is apparent from the inclusion of the Sakhalin oil provisions in the Portsmouth treaty ending the Russo-Japanese war.

A considerable amount of money is now being spent in subsidies to oil prospectors, and any report of the discovery of oil in Japanese territory is carefully investigated. The coal-liquefaction program and the use of charcoal-burning automotive vehicles are typical of the numerous methods whereby the Japanese authorities are attempting to lessen the nation's dependence on natural crude.

With Netherland East Indies and Soviet Russia intimately concerned with the European war, Japan has no assurance that either of those two sources will remain in position to supply normal quantities of petroleum. The only other source remaining open to Japan is the United States.

In the event supplies of petroleum should be cut off from the United States, a source from which Japan draws from 60 to 70 per cent of her total requirements, strategists believe the Nipponese Government would seize the Netherland East Indies in a desperate counter move. The Netherland East Indies are remote from protective forces and within easy reach of Japan.

In omitting petroleum from the products placed under moral embargo the United States doubtless considered that to do otherwise would be inviting a conflict over the Netherland East Indies petroleum supply. Rather than place Japan's back to the petroleum economic wall and force what is considered an invitable struggle, the U. S. Government apparently elected to make a concession on oil.

Production in the Netherland East Indies is controlled by the Royal Dutch-Shell and the Standard-Vacuum groups, dominated by British, Netherland and United States interests.

Evidence that the matter of petroleum deficiencies of Japan was not overlooked entirely in shaping the moral embargo message is given in the request that companies and individuals withhold "plans, plants, manufacturing rights, or technical information required for the production of high-quality aviation gasoline."

One or two United States engineering firms accustomed to dealing with Japan have expressed dissatisfaction over the turn of the moral embargo. They argue that it is difficult to understand why it would be a moral transgression to build aviation-gasoline plants, or advise and engineer their construction in Japan while continuing the sale of products made by such facilities in this country.

Restraint of engineering and advisory services to Japan on high-quality gasoline production does not lessen the threat against the Netherland East Indies or alter the position of the United States as the chief source of supplies so long as the political map of the Orient is unchanged.

England . .

To Use Sewage Gas To Run Motor Cars

THE County Council of Middlesex, England, approved the report of its laboratory the other day proving that the surplus methane gas of the county could be used to operate automobiles, as is already done in Berlin, thereby saving over 300,000 gal. of petrol a year.

Methane, or marsh gas (1 part carbon and 4 parts hydrogen), is produced from the sludge or scum of decomposing vegetable matter, and, although aside from the town of Brendford there are few congested communities in Middlesex, the county's sewage system is the envy of the others.

The laboratory report to the council, as reported in the New York Times, stated that a steady surplus of over 150,000 cu. ft. a day of methane gas was being produced at the council's sewage works at Mogden. This was equivalent to 700 gal. of petrol a day, worth £19,000 ($75,000) a year at present prices. Two compressors for storing the gas are to be purchased and it is proposed to start by equipping the vehicles of the council's main drainage department with the necessary cylinders for carrying the gas.

This would save the council over 200 gal. of petrol a week, or about £700 ($2,800) a year at present prices. An extension of the scheme to general county vehicles would then be possible, followed by a general sale to haulage contractors and perhaps to the London Transport Board which, stated the report, was already investigating the proposal.

Mexico . .

Hull and Richberg Resume Conferences

ANOTHER of the series of conversations on the Mexican oil situation being conducted by Secretary of State Cordell Hull occurred last week when he discussed with Donald R. Richberg, representing some of the American companies, a number of important phases of the expropriation problem.

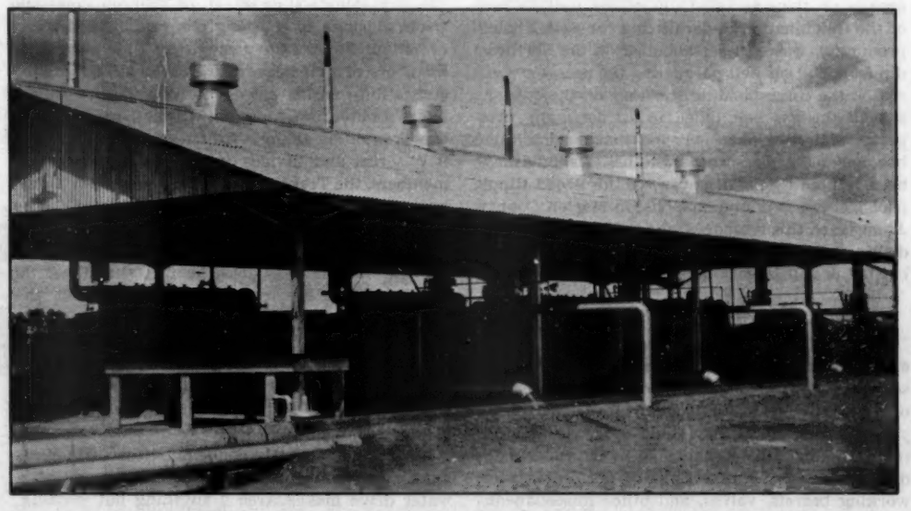
Secretary Hull had made known his purpose of holding conferences with representatives of American companies following the decision of the Mexican Supreme Court on the legality of expropriation.

Secretary Hull would not reveal the details of the conference, asserting the conversations are still going on and he is not in a position to give the press anything definite at this time. The secretary said the conferences generally were not of such a definite, final, or decisive nature in any way as to enable him to be helpful to the press. Some of the conferences, he said, are by telephone, others by correspondence, in addition to personal contacts at the State Department. He declined to discuss whether the State Department has given consideration to the possibility of requesting Mexico to submit the controversy to arbitration.

Iran . .

Concession Granted In Northern District

ALGEMEENE EXPLORATIE MIJ., Netherlands, acquired part of the territory in northern Iran this year which was relinquished in 1938 by Amiranian Oil Co., a subsidiary of Seaboard Oil Co. of Delaware. Exploration work is under way on the Algemeene concession. The exploratory period provided in the agreement between the company and the government covers a period of 3 years and was granted on the payment of $265,000.



View of pump house at Oliciana, Venezuela, gathering station No. 1. These pumps are driven by gas engines

Prospects of Lima-Indiana

(Continued from Page 19)

early field in existence, and it is hence impossible to say whether it was a true dolomite or a highly porous limestone.

Area 4.—Fig. 2 shows this area to start at the eastern boundary of the Indiana gas belt in south central Jay County, then to hug the gas belt in an easterly direction till it crosses the Ohio line, and finally to take off northeasterly parallel to Area 1. It differs from the latter geologically as well as in having experienced much less exploration. Whereas differential porosity and compaction of sediments chiefly explain the accumulation in Area 1, production in Area 4 comes largely from small domes and anticlines. A gas dome in Hardin County, for instance, is one of the most distinct structures in Ohio, and the latest important pool in the Indiana part of the field, the Hotmire of southern Jay County, developed in the early 1920's, and having several wells with initials of 250 bbl., is apparently on an anticline. To this territory geophysics might conceivably be applicable.

A further attractive feature is the possible effectiveness of acid here. The purely dolomitic pay horizon of Area 1 has, probably for more than one reason, so far refused to respond to this modern device. But producers in Area 4 assert that a greater proportion of lime is present there than to the northwest, and this is supported by the finding of geologists from as long ago as 1890 that the Trenton grades into a pure limestone as one goes toward the Ohio River.

Also in Area 4 is the interesting "green sand" production, which actually comes from a green dolomite in the very bottom of the Trenton and which was formerly mistaken for St. Peter-sand production. Though wells in Marion County, Ohio, produced for several years from this dolomite, and the Sun Oil Co. has on two occasions, one as recent as 2 years ago, opened pools in it in Seneca County, there has probably never been a commercial pool at this horizon. However, it has the attractive features of carrying a crude which is several degrees higher in gravity than that of the regular Trenton pay, which rarely runs over 39° B., and that contains less of the hydrogen sulfide which makes Trenton oil so objectionable to most eastern refiners.

Area 5.—This contains the only extensive stretches of virgin territory in the Lima-Indiana field, and just why they have so long remained unexplored is puzzling. As Fig. 2 displays, the area is on the southwest dip of the Indiana nose of the Cincinnati arch paralleling the axis. Though production was early established on the northeast dip from the gas belt paralleling the axis, for some reason the corresponding territory on the opposite side of the gas belt failed to attract many prospectors. If they once believed that accumulation had not taken place there, the belief should have been refuted by the discovery of the Broad Ripple pool just north of Indianapolis, in Marion County. At any rate, this is an area where the dearth of past drilling assures that whatever oil and pressure ever existed is still largely present.

Secondary Recovery

Though lime fields are usually considered incapable of revival by conventional methods of secondary recovery, many, through use of acid and other means of cleaning out, have been made to yield more oil than they could otherwise. Unfortunately, this is not practicable in the field under discussion. Once the sections of perforated pipe, working barrels, valves, and other miscellaneous accumulations of years of careless operation have been fished from the wells here, there is practically nothing more that can be done to resuscitate them. For even if acid were effective in cleaning the paraffined face of the formation—which would require extremely large quantities, as all the wells were shot—the use of acid would be impractical because of the short string of casing and the consequent length of open hole. When acid is injected through tubing under such conditions at the pressure necessary to force it into the Trenton, it takes the easier course of working around the tubing packer and back into the 600 ft. of open hole. This is a problem on which the engineers of the acidizing companies have so far worked without any success.

Possibility of Deeper Production

Also the chance of finding productive zones beneath the Trenton limestone may wisely be left to conjecture rather than investment. The type of geologist who finds glib correlation more attractive than painstaking study of the slow processes of geologic history used to create quite a stir by setting down the Trenton as the Viola limestone of the Mid-Continent, and then pointing to the likelihood of lower production here on the ground that formations below the Viola were productive in the Southwest. But today probably no responsible geologist anywhere regards the Trenton as the Viola, the St. Peter sandstone as the Wilcox, or the Shakopee limestone as the Arbuckle, simply because the former formations and the latter are at approximately corresponding places in the geologic sections of the Lima-Indiana and Mid-Continent fields, respectively.

What should interest practical oil men is not correlations but the fact that these local formations have been rather extensively tested with no encouraging results. Particularly the St. Peter—which exists in the Indiana part of the field, though Isabel Wasson doubts it is present in Ohio—has been punctured in so many places in northeastern Indiana that I long since despaired of making my map of it complete, and consoled myself with the thought that a formation which has never held anything here but "Blue Lick" water was not worth mapping. The top of the Cambrian system lies only 300 to 500 ft. below the bottom of the Trenton, and pre-Cambrian formations have been encountered in Hancock County, Ohio, at 2,677 ft., and in northeastern Indiana at 3,895 ft.

The only reasonable possibility of deeper production under the usual Trenton pay seems to lie in the remaining 500 or 600 ft. of Trenton limestone itself. Thanks to the long observation and study of Wilbur Stout, state geologist of Ohio, and other members of that survey, a great deal of more accurate information has of late years been accumulated about this formation. Instead of regarding the Trenton as a single formation, Mr. Stout calls it a series and divides it into two recognizable members, the Trenton proper, of some 200-ft. thickness, and the Black River, of about 400 ft. The 275-ft. pay of the Delaware-Randolph County field, and the production in the green dolomite in Area 4, are significant, as is also the fact that the only so-called St. Peter production recorded in the publications of the Indiana Department of Conservation is obviously not in the St. Peter at all, but is probably in the same green dolomite in the lower member of the Trenton (or Black River).

Summary

Area 1 is apparently condemned for further development, and the unpredictable element of a water drive makes Area 2 anything but inviting. In Area 3 there is merely the possibility of finding further deep oil-producing zones in the Trenton under the gas pay.

Thus only Areas 4 and 5 seem promising. The Indiana part of Area 5 suffers from the fact that the only marketing outlet there is by tank truck to factories using crude as fuel, a market varying with the vicissitudes of industry. No such objection exists to the Ohio part of this area, as it is still well covered by a gathering system of pipe lines. In this connection, whoever enters Area 5 can reasonably hope that any production he finds there will attract oil buyers, as the territory is crossed by the trunk pipe lines of the Socony-Vacuum, Illinois, Gulf, and Sohio companies.

Named Chief Petroleum Engineer For Humble

HOUSTON, Tex., Jan. 1.—C. E. Reistle, Jr., has been appointed chief petroleum engineer for Humble Oil & Refining Co., succeeding the late W. W. Scott. M. Bowman Thomas, who had been division engineer at Corpus Christi, has been selected as engineer in charge of the petroleum-engineering department.

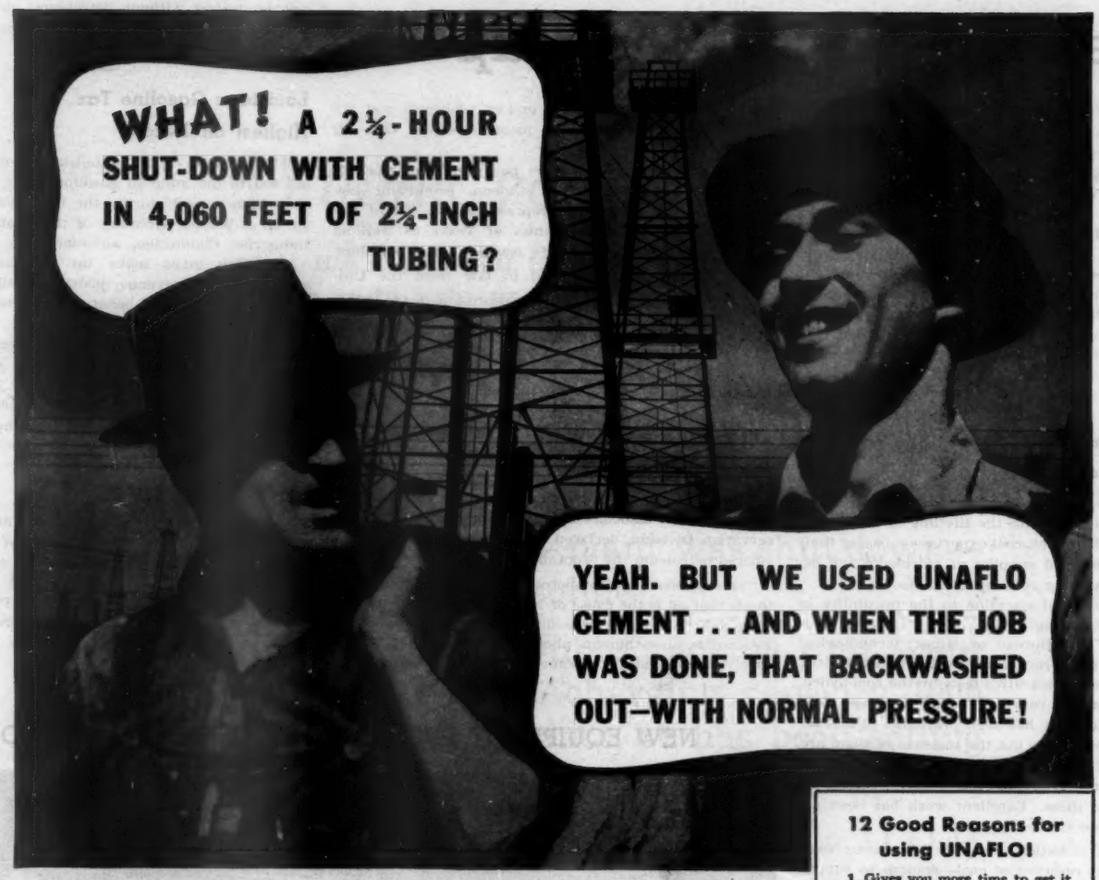
Mr. Reistle graduated from the University of Okla

C. E. REISTLE, JR.

homa in 1922 and joined the Petroleum Division of the Bureau of Mines at Bartlesville, Okla. In 1924 he was transferred to Laramie, Wyo. He was placed in charge of the vertical-flow study in 1929 and returned to Bartlesville. He prepared reports on methods of identifying underground water by chemical analysis, prevention of paraffin in oil-producing wells, and covering efficient operations for producing oil fields and flowing wells. In 1933 he was granted a leave of absence by the bureau to accept the chairmanship of the East Texas Engineering Association at Kilgore, resigning in 1936 to become assistant chief petroleum engineer for the Humble company.

Texas-Empire Pipe Line Offers Reward for Dynamiters

Texas-Empire Pipe Line Co. has offered another reward for information leading to the arrest and conviction of persons who late December 22 blew up a part of the 8-in. line near Casey, Ill. It is the sixth time the line has been blown up as a result of labor troubles.


WHAT! A 2¼-HOUR SHUT-DOWN WITH CEMENT IN 4,060 FEET OF 2¼-INCH TUBING?
YEAH. BUT WE USED UNAFLO CEMENT... AND WHEN THE JOB WAS DONE, THAT BACKWASHED OUT—WITH NORMAL PRESSURE!

THEY ran a cement retainer to 4063 ft. on 2¼-in. tubing, above the top perforation—which previously had been cemented off. They then pumped 598 sacks of Unaflo Oil Well Cement into the tubing. Working pressure was only 1,000 to 1,500 lb. Elapsed time, so far—1 hour and 23 minutes.

Then mechanical trouble forced a shut-down. *Repairs took 2 hours and 14 minutes.*

Was this risky? Was their well investment in danger? NO! Far from it! They used *Unaflo* Cement! And Unaflo stayed fluid, and backwashed out with normal pressure in 32 minutes .... 4 hours and 22 minutes after the mixing started!

When things go haywire on a job—that's the time you're glad you used Unaflo, the cement with the retarded set that stays pumpable for over 4 hours at 180°. So play safe. Use Unaflo *every time!*

Write for "Oil Well Cementing Guide," which tells about Unaflo and its particular adaptability to Mid-Continent conditions. If you are in the Mid-Continent Field, send away *today*. Be sure to put your request on your business letterhead. Universal Atlas Cement Co. (United States Steel Corp. Subsidiary), Amicable Building, Waco, Texas; Kansas City; Tulsa; Oklahoma City.

12 Good Reasons for using UNAFLO!

1. Gives you more time to get it down.
2. Mixes and places easily with 35% water, thus eliminating need for excess water—a big menace to good cementing.
3. Follows irregularities of well bore and casing.
4. Easier to regulate viscosity at tub.
5. Hardens thoroughly with high density after placing.
6. Not stiffened by mud contamination.
7. Not affected by salt water contamination.
8. Sets satisfactorily in sulphate water.
9. Meets the requirements for sulphate resistance.
10. Makes squeeze and plug-back jobs easier, surer, more successful.
11. Permits operator to control cement rather than being controlled by it.
12. Has been proved by oil industry by consistently "coming through in the clinches" ever since its introduction.

OG-U-8

Universal Atlas
CEMENTS

Selection of Wirtz May Mean Bureau of Mines Shakeup

WASHINGTON—President Roosevelt today nominated Alvin J. Wirtz, an attorney of Austin, Tex., as undersecretary of the interior, succeeding Harry Slattery who resigned some time ago. Mr. Wirtz has been a member of the Texas senate and attorney for both major and independent oil interests.

Coincident with his appointment it was learned from reliable sources that Ickes plans many personnel changes in Bureau of Mines and that Director John W. Finch has already been asked to resign before the end of the month and that other resignations are contemplated. Reports are that Ickes is dissatisfied with conservative attitude of Bureau of Mines, retention of many Republican holdovers in key positions, and bureau's refusal to work for passage of the Cole oil control bill.

Mr. Wirtz for several years has been a member of Powell, Wirtz, Rauhut and Gideon, prominent law firm of Austin, which has represented several of the large oil and utility companies of Texas as well as independent oil interests. He was born at Columbus, Tex., in 1887 and graduated in law from the University of Texas in 1910. He represented the nineteenth senatorial district of Texas in the thirty-eighth to forty-first legislatures inclusive.

Coal Men Foresee Market For Coal-Gasoline

WASHINGTON, D. C.—The long-sought market for coal may be attained within the lifetime of many men now working in the mines, coal experts say, basing their forecast on estimates of supplies of petroleum and experiments in converting coal into gasoline.

Secretary Ickes called attention to the possibility in his annual report, saying:

"One phase of the Bureau of Mines' technological work during the past year, which bore promise for the future, consisted of comparative tests by the coal-hydrogenation laboratory on various types of low-rank coals from the West. It never has been profitable to market some of the western coals, but the reserves of them are so prodigious that they offer a potential source of motor fuel in spite of the relatively low recovery of liquid hydrocarbon from them. Excellent work has been accomplished in these studies."

Charles Potter, statistician at the Bituminous Coal Division, said vast reserves of coal—enough to supply current demands for many thousands of years—are waiting to be tapped, and "it need not be the best of coals that goes into the anticipated coal-gasoline plants, for even lignite, lowest of low-rank coal, has been converted into motor fuel."

Oil Not Cause of War Declares John W. Frey

CHICAGO.—In an address here on "The World's Oil," John W. Frey, associate director of the Petroleum Conservation Division, declared that too many people considered petroleum the "root of all evil."

"Several books and numerous articles developing the thesis that oil is the cause of international conflict have been well received. This point of view is an attempt to rationalize on a human phenomenon that in itself is rarely rational, and war waged to gain possession of oil could not be justified on the basis of commercial profits from such a gruesome 'investment.' It is recognized that oil is coveted by several nations, but it is probably more nearly the truth to say that modern warfare cannot be waged without petroleum, and, consequently, it is of great strategic value, than to maintain that it is the cause of war."

Louisiana Gasoline Tax Highest on Record

BATON ROUGE, La.—Louisiana motorists paid $18,627,000 to the state in gasoline taxes, making an all-time high record, during the fiscal year ending June 30, M. J. Wilson, secretary of the Louisiana Petroleum Industries Committee, announced.

"Gasoline taxes make up the largest individual source of state revenue, providing millions of dollars to build roads which benefit every community in the state," said Mr. Wilson.

"The gasoline tax should not be used for other than highway purposes. The state tax on gasoline in Louisiana is 7 cents per gallon but only 4 cents is used for the construction and maintenance of highways. The remaining 3 cents is used for other purposes and in fairness to the motorists this should be changed."

Gas to Muskegon

MUSKEGON, Mich.—Muskegon is now getting natural gas through the new pipe line of West Michigan Consumers Co., the company having started pumping between 800,000 and 1,000,000 cu. ft. daily from the Grand Rapids oil field. After the Pent-Hex Corp.'s new gasoline plant is completed here, the company will take 6,000,000 cu. ft. of gas a day from the Grand Rapids field.

DEATHS

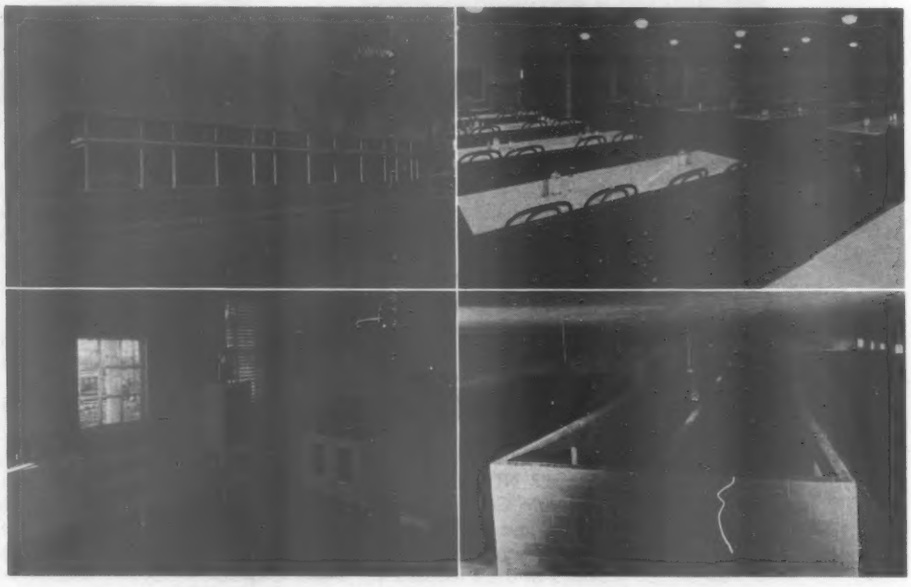
ROBERT S. MATTHEWS, 60, retired independent oil producer, Tulsa, died last week. He had been a pioneer in the oil business both in Oklahoma and West Texas. He moved to Oklahoma from Georgia in 1916.

WILLIAM TECUMSEH SHERWOOD DOYLE, 63, general manager of Royal Dutch-Shell oil properties at Caracas, Venezuela, for 20 years, died January 1. He was a former United States foreign service officer.

JOHN ROSS HEMPHILL, 57, died December 29. He moved to Tulsa in 1918 from Ranger, Tex. During his 41 years of activity in the oil business he was for the most part affiliated with independent producers.

F. C. MADDUX, one of the owners of Llano Construction Co. of Pampa, Tex., a pipe-line construction firm, was killed in a plane crash last Wednesday on the snow-covered rangeland of the Texas Panhandle about 7 miles south of Pampa. His brother, N. F. MADDUX, also of Pampa, who was accompanying him, was seriously injured. Both men owned planes and were licensed pilots.

NEW EQUIPMENT PROVIDED FOR TEXAS CO. EMPLOYES



Exterior and interior views of the Texas Co. employes' new building at West Tulsa refinery of the company

THE 320 employes of the West Tulsa refinery of Texas Co. have been taking advantage in the past month of the various parts of the new 100 by 140-ft. building provided for them. The new structure houses an exceptionally well-equipped cafeteria, kitchen, meeting room, first-aid station and locker-room. Built of brick to keep each section as a complete and independent unit the building serves as a model in every detail.

Space and equipment have been provided in the cafeteria to accommodate 150 men, leaving wide aisles. The kitchen contains a large automatic, steam dishwasher, two-deck baking oven, automatic potato peeler, and the most modern equipment.

The meeting room which adjoins the cafeteria provides seats for a group of any size which the refinery employes might expect to assemble. This room could also serve as a club room and tentative plans call for providing large overstuffed chairs for reading, library tables and a selection of books and periodicals to interest the men at "off hours."

A valuable and of course extremely vital portion of the new building is the room occupied by the first-aid equipment. A nurse is in attendance and every facility is provided to effectively handle any case of injury that might come to the employes.

Considerable comfort and convenience is also provided by the spacious and airy locker room. Through the center of the locker room is a series of showers. A feature of the installation is the automatic control placed on each mixing valve which will not permit water to pass into the bath which is above a predetermined temperature.

Thank you, U.O.P.

Let me thank you for the trouble you have gone to to help us figure out this problem The service your company has given us is certainly invaluable to a business the size of ours

That's a typical letter to Universal

Here is this refiner's story:

In 1934 his skimming plant was shut down—he couldn't sell his gasoline

In July, 1935, his Dubbscracking unit went into operation—rated charging capacity 1000 barrels a day Ever since he has been selling all his products and improving his operation

In September, 1938, he installed a U.O.P. midget catalytic poly unit processing 150,000 cubic feet of cracked gas a day—making 1200 gallons of polymer gasoline of 82 octane rating

Now he is planning to increase his capacity to make more Dubbscracked gasoline of higher octane rating

U. O. P. engineers have helped him all the way along

They will help you, too

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

Natural-Gas News

1940 officers of California Oil and Gas Association: R. E. Collom, vice president of Continental Oil Co., president; Torrey H. Webb, vice president of Texas Co., vice president; William Reinhardt, vice president of Union Pacific Railroad Co., vice president; H. L. Westbrook, vice president of Belridge Oil Co., treasurer

California Oil and Gas Association Elects

R. E. Collom, vice president of Continental Oil Co., was elected president of the California Oil and Gas Association at the December meeting of the association board of directors. Torrey H. Webb, vice president of Texas Co., and William Reinhardt, vice president of Union Pacific Railroad Co., were elected vice presidents. H. L. Westbrook, vice president of Belridge Oil Co., was reelected treasurer for his fifteenth successive term. F. E. Foster continues as managing director, and D. S. Kilgour continues as assistant manager.

Directors elected for 1940 include: S. Belither, vice chairman, Shell Oil Co., Inc.; W. H. Berg, president, Standard Oil Co. of California; R. A. Broomfield, executive vice president, Barnsdall Oil Co.; D. S. Faulkner, vice president, National Supply Co.; E. B. Gilmore, president, Gilmore Oil Co.; Dana Hogan, president, Hogan Petroleum Co.; Charles A. Johnson, president, Holly Oil Co.; C. S. Jones, president, Richfield Oil Corp.; W. M. Keck, president, Superior Oil Co.; R. B. Lloyd, president, Lloyd Corp.; C. R. Gallagher, president, Western States Gasoline Co.; John McFadyen, vice president, Ohio Oil Co.; Alexander B. Macbeth; A. C. Mattei, president, Honolulu Oil Corp.; F. C. Ripley, manager, Chanslor-Canfield Midway Oil Co.; L. P. St. Clair, president, Independent Oil Producers Agency; Reese H. Taylor, president, Union Oil Co. of California; F. S. Wade, president, Southern California Gas Co.; C. P. Watson, vice president, Seaboard Oil Co. of Delaware; A. L. Well, president, General Petroleum Corp. of California.

Four Western Pennsylvania Companies to Merge

HARRISBURG, Pa., Dec. 29.—Merger of four western Pennsylvania natural-gas utilities into a $37,550,000 corporation, placed before the Public Utility Commission for approval, would affect 150,396 Pennsylvania customers.

The commission scheduled a hearing for January 24 at Pittsburgh on the merger application of Manufacturers Light & Heat Co., Manufacturers Gas Co., Pennsylvania Fuel Supply Co., and Greensboro Gas Co., all with main offices in Pittsburgh and owned by the Columbia Gas & Electric Corp. The new corporation would be known as the Manufacturers Light & Heat Co.

Savings and economies were listed as reasons for the requested consolidation, plus the companies' contention they would be "better able to produce and supply natural gas to the public than each separate corporation could do by itself."

The merger would affect a total of 202,875 customers in this and other states.

Manufacturers Light & Heat Co. in 1938 had 166,871 customers, including some in Ohio and West Virginia and 114,544 in these Pennsylvania counties: Adams, Allegheny, Armstrong, Beaver, Butler, Bedford, Chester, Clarion, Fayette, Franklin, Fulton, Greene, Lancaster, Lawrence, Somerset, Washington and York.

Manufacturers Gas Co. has 202 customers in New York State and 5,897 in Elk, Jefferson and McKean counties.

Pennsylvania Fuel Supply Co. had 4,724 customers in Armstrong, Butler, Clarion and Venango counties.

The Greensboro company lists 25,231 customers in Fayette, Greene, Washington and Westmoreland counties.

Natural Gas Consumption Decreased in 1938

The marketed production of natural gas in 1938 decreased for the first time since 1933, according to the Bureau of Mines. The total of 2,295,562,000,000 cu. ft. in 1938 represents a decrease of approximately 5 per cent from the peak of 2,407,620,000,000 cu. ft. reached in 1937.

Consumption (marketed production less net exports), also decreased almost 5 per cent, totaling 2,294,097,000,000 cu. ft. in 1938 compared with 2,403,041,000,000 cu. ft. in 1937. All the major classes of consumption except field use decreased, the largest decrease being in miscellaneous industrial uses, following the industrial slump in 1938.

The value of natural gas at the wells declined from an average of 5.1 cents in 1937 to 4.9 cents in 1938. This decline reflects further decreases in the prices paid for the large amounts of low-priced gas used in the field and in carbon-black manufacture, primarily in Texas and Oklahoma. The average value at points of consumption declined from 21.9 cents in 1937 to 21.8 cents in 1938. The average price for domestic and commercial gas advanced 0.7 cent but the average price for industrial use, other than field and carbon-black manufacture, declined 0.7 cent.

The 2,294,097,000,000 cu. ft. of natural gas consumed in 1938 was divided in the major classes of consumption as follows: Field use, 659,203,000,000 cu. ft. (29 per cent); domestic consumption, 367,772,000,000 cu. ft. (16 per cent); commercial consumption, 114,296,000,000 cu. ft. (5 per cent); carbon-black manufacture, 324,950,000,000 cu. ft. (14 per cent); fuel in electric public-utility power plants, 169,988,000,000 cu. ft. (7 per cent); fuel in petroleum refineries, 109,741,000,000 cu. ft. (5 per cent); fuel in cement plants, 37,336,000,000 cu. ft. (2 per cent); and all other industrial purposes, 510,811,000,000 cu. ft. (22 per cent). These figures show decreases from 1937 in all classes of consumption except field use, which increased about 1 per cent. The largest decrease was for miscellaneous industrial purposes, which went down almost 15 per cent.

The total number of domestic and commercial consumers increased from 9,028,180 in 1937 to 9,338,210 in 1938, despite a decrease of over 1 per cent in the total amount of gas utilized by such consumers. The average amount of gas used per consumer decreased from 54,200 cu. ft. in 1937 to 51,600 cu. ft. in 1938.

Of the 2,294,097,000,000 cu. ft. of natural gas consumed in 1938, 55,825,000,000 cu. ft. was mixed with manufactured gas. There were 2,381,710 domestic and commercial consumers using mixed gas in 1938 compared with 2,410,610 domestic and commercial consumers in 1937.

There were 53,770 gas wells in use at the end of 1938 compared with the revised figure of 55,050 wells at the beginning of the year. There were 2,236 wells drilled in 1938, which indicates that 3,516 wells were abandoned or shut in during the year; this compares with 2,284 abandoned or shut in during 1937.

Interstate (and export) movement of natural gas decreased from 687,428,000,000 cu. ft. in 1937 to 636,626,000,000 cu. ft. in 1938, or 7 per cent. Most of the major movements between states decreased, the outstanding exception being that from New York to Pennsylvania, which increased from 9,925,000,000 cu. ft. in 1937 to 22,350,000,000 cu. ft. in 1938. Imports from Canada, all into Montana, were 372,000,000 cu. ft. in 1938 compared with 289,000,000 cu. ft. in 1937. Exports to Mexico fell from 4,790,000,000 cu. ft. in 1937 to 1,743,000,000 cu. ft. in 1938.

Refinery News

Refinery to Be Moved From East Texas to Mississippi

Walter Trout and associates have acquired an 8-acre site 10 miles south of Yazoo City, Yazoo County, Mississippi, for a 1,600-bbl. daily refining unit that they plan to move to this location from the East Texas field. Location is near Tinsley dome and on the Yazoo & Mississippi Valley Railroad.

Kendall Completes $250,000 Unit at Bradford, Pa.

BRADFORD, Pa.—Construction work on the new $250,000 concentration plant of the Kendall Refining Co. is nearing completion.

The unit will undergo tests before going on stream early in January.

The M. W. Kellogg Co. of New York, in charge of construction of the unit, had more than 130 men on the job during the peak employment period.

Shallow Water Moves Offices To Garden City, Kans.

GARDEN CITY, Kans.—The Shallow Water Refining Co. is moving its offices here from Scott City according to announcement by C. L. Crenshaw, manager. The offices have been at Scott City for about a year.

The Shallow Water company recently expanded operations with the installation of a cracking unit and acquisition of the Continental Oil Co.'s Ness County production, in addition to the Atlantic Refining Co.'s Finney and Scott county production.

Ben Franklin Will Enlarge Ardmore, Okla., Refinery

The Ben Franklin Refining Co., of Ardmore and Tulsa, announces plans to increase the daily capacity of its Ardmore refinery from 3,500 to 6,000 bbl. a day. Work in enlarging the plant is to start early in 1940.

$20,000,000 Will Be Spent on Texas and Louisiana Plants

Refineries of South Texas and South Louisiana during 1940 will spend about $20,000,000 in expanding facilities of plants. Included in the programs will be Humble Oil & Refining Co., Shell Oil Co., Inc., Sinclair Refining Co., Magnolia Petroleum Co., Pan American Refining Co., Gulf Refining Co., Texas Co., Republic Oil Refining Co., Barnsdall Refining Co., and Standard Oil Co. of Louisiana.

Pipe-Line Activity

Tentative Dates Scheduled For Pipe-Line Inspection

The final inspections of the pipe-line coatings installed in 1930 in the tests undertaken jointly by manufacturers of protective coatings, the American Petroleum Institute, and the National Bureau of Standards will be made in the spring and summer of 1940 under the supervision of the Bureau of Standards, which will prepare a report on this work, submit it to the cooperating coating manufacturers for criticism, and present it at the annual meeting of the Institute in 1940. A more complete and final report may be prepared later.

The following tests will be made as on former inspections: (1) soil resistivity measurements; (2) current on the working lines; (3) pattern tests for the location of pinholes; (4) coating resistance (electrical); (5) inspection of coatings, probably in accordance with the U.P.P.I. code for inspections; (6) measurements of pit depths on bare and coated specimens of pipe. Photographs of each coating will probably be taken but only a few of them will be published.

At each of 13 test sites there remains 14 coatings on each of two 12-ft. sections of working pipe line. At 15 test sites there are approximately 46 varieties of coatings applied to 2-ft. sections of 3-in. pipe. There are also several sections of uncoated line and 3-in. pipe at each test site.

The exposure of this large number of protective coatings applied to working pipe lines exposed to a variety of soil conditions for 10 years offers an unusual opportunity for the collection of information about the serviceability of protective coatings. At a recent meeting of the topical committee on pipe-line technology of the American Petroleum Institute it was decided to permit any one who so desired to be present at the time the coatings were exposed and to make such observations as he wished under three conditions: (1) Privat observers should not delay the work or injure the coatings; (2) the data obtained should be used only for scientific purposes; (3) the results of private inspections should not be published prior to the publication of the final report by the American Petroleum Institute.

Two organizations have already indicated their intention to have representatives accompany the Bureau of Standards men from the beginning to the end of the inspection trip. This will of course enable these inspectors to collect much more reliable and complete data than different inspectors at each site could secure, and they will no doubt make many observations which their sponsors would not obtain through reading the published report.

A tentative schedule for the inspections has been prepared. Because of weather and labor conditions it may not be practical to adhere strictly to the schedule, and it is impracticable to determine far in advance the exact day on which any particular coating will be exposed.

Following is a tentative schedule for inspections of pipe-line coatings: Long Beach, Calif., March 4 to 12; Cholame Flats, Calif., March 14 to 20. (Partial set of line coatings): Mendota, Calif., March 22 to 25. (36 coatings on 3-in. pipe only): Temple, Tex., April 2 to 10; League City, Tex., April 12 to 20; El Vista, Tex., April 22 to 30; Spindle Top, Tex., May 1 to 9; Bunkie, La., May 11 to 21; Council Hill, Okla., May 24 to June 1; Skiatook, Okla., June 3 to 11; Arkansas City, Kans., June 13 to 21; Caney, Kans., June 23 to July 2; Mount Auburn, Ill., July 5 to 13; Preble, Ind., July 15 to 23; Chambersburg, Pa., July 26 to August 3.

Natural Gasoline

Arkansas Fuel Is Constructing Plant in Northeast Texas

Arkansas Fuel Oil Co. (Cities Service) has begun work on a new natural gasoline plant in Harrison County, Northeast Texas, near the Waskom gas field. The plant has a daily capacity of 20,000,000 cu. ft. of gas daily and will be served from five deep wet gassers completed in the Travis Peak and Pette horizons by this company in this field, the only deep production there. The location of the plant is in the Abney Headright Survey. It will be finished early in February. Recovery is expected to average 300 gal. per 1,000,000 cu. ft. of gas.

Third Recycling Plant Is Planned for Grapeland

CROCKETT, Tex.—Plans for the third Grapeland recycling plant were announced Monday. The Grapeland Oil Co. will built the new plant on the J. W. Ellisor 70-acre tract in the Josiah Herod Survey, 3 miles southwest of Grapeland, Tex. The Grapeland Oil Co. has a 325-acre block on which it plans to drill three wells. One distillate well has been completed and another test now is drilling.

Lone Star-Trinity Gas jointly have asked bids on a 30,000,000-cu. ft. plant in the same area. American Liberty's plant has been operating in the Grapeland area since June 1.

California Natural-Gasoline Output Declined

LOS ANGELES, Calif.—The production of natural gasoline in California decreased in November according to a report of the Bureau of Mines. Production was 1,386,594 gal. less than it was in the preceding month.

NATURAL GASOLINE PLANT OPERATIONS

	Gas treated (thou. cu. ft.)	Natural gasoline produced (gal.)
San Joaquin Valley—		
Belridge	3,974,481	2,284,407
Elk Hills	87,304	121,971
Kettleman Hills	8,106,959	11,611,047
Midway-Sunset	913,022	1,713,757
Mountain View	302,025	354,849
Miscellaneous	975,147	671,434
Coastal District—		
Elwood	353,257	474,105
Rincon	143,654	201,443
Santa Maria	145,720	445,441
Ventura Avenue	3,785,239	5,525,141
Miscellaneous	489,158	475,868
Los Angeles Basin—		
Brea-Olinda-Coyote	424,330	1,286,247
Dominguez	1,251,421	2,100,792
El Segundo	53,240	129,473
Huntington Beach	792,578	2,580,795
Inglewood	254,453	367,630
Long Beach	2,308,306	7,045,150
Montebello	2,383,260	1,296,225
Richfield	286,535	561,230
Rosecrans	1,207,102	1,146,290
Santa Fe Springs	1,388,697	4,666,384
Seal Beach	365,880	496,915
Torrance	340,022	932,976
Miscellaneous	1,295,697	2,386,503
Total (all fields)	31,625,487	48,876,073

DISTRIBUTION

	Gal.	Gal.
Stocks beginning of month	4,339,506	
Production during month	48,876,073	
Delivered to refineries		48,676,765
Delivered to jobbers, brokers, or blenders		523,055
Blended at plants for production of motor fuel		289,264
Losses		47,468
Stocks end of month		3,679,027
Total	53,215,579 Gal.	53,215,579 Bbl.
Liquefied petroleum gas production	3,453,416	82,224
Motor fuel produced	9,662	230

DISTRIBUTION OF LIQUEFIED PETROLEUM GASES—NOVEMBER 1939

(Thousands of gallons)

Number of producing companies	12	
Stocks beginning of month		1,631
Production during month:		
At natural gasoline plants	3,453	
At refineries from natural gas	1,685	
At refineries from cracked gas	1,575	
Total production		6,713
Total		8,344
Total demand		6,518
Losses		38
Stocks end of month		1,788
Total		8,344

Louisiana-Nevada Line Construction Ordered

LITTLE ROCK, Ark.—An order of the State Utilities Commission directs the Louisiana-Nevada Transit Co. of Ada, Okla., to proceed with construction of a 75-mile pipe line from Cotton Valley, La., into Southwest Arkansas for distribution of natural gas.

The order empowered the company to serve industrial consumers at Hope and Okay and directed it to make a detailed survey within 60 days at Saratoga, McNab, Fulton and Bradley to determine feasibility of serving those places.

The new company entering the area as a competitor of Arkansas Louisiana Gas Co., has contracted to serve the Ideal Cement Co. plant at Okay and the Hope light plant and the Hope brick works at 10 cents per 1,000 cu. ft.

Cost of the proposed line was estimated at $440,000.

Laying pipe line through Devil's Canyon near Morgan, Utah. In some places here it was necessary to carry the pipe across creeks 4 ft. deep. Steep hills were also frequently encountered

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PROGRAMS AND MEETINGS

Retired Ohio Oil Co. officials and their successors. Seated: J. S. Hasson. Standing: Ralph A. Burdick, L. J. Lynch, who succeeds Mr. Hasson, and W. F. Baldwin, who succeeds Mr. Burdick

Ohio Oil Co. Employes Honor Retiring Veterans

Employes of the Shreveport office of the Ohio Oil Co. and their families attended a banquet on Thursday evening, December 28, at the Washington-Youree Hotel in honor of the retirement of John S. Hasson, Sr., general superintendent of the Shreveport division, and Ralph A. Burdick, who retires as division cashier and office manager, and the resignation of R. A. Tillery as assistant superintendent for the division. Also honored were W. F. Baldwin, who has been appointed cashier and office manager, and L. J. Lynch, new general production superintendent who also takes over some of the other responsibilities heretofore discharged by Mr. Hasson.

Mr. Hasson has been retired as of December 31, 1939, after more than 46 years in the service of the company. A native of New York City, Mr. Hasson began his oil-field career in Washington County, Pennsylvania, in the late eighties. In 1893, he entered the employ of Ohio Oil Co. in the Lima, Ohio, field, and served as roustabout and tool dresser, farm foreman, district foreman, district superintendent, and was transferred to Shreveport in July 1924 as general superintendent. He also has held the position of president and director of the Arkana Transit Corp., and president and director of Transark Oil Co. For several years he held office in the Louisiana-Arkansas division of the Mid-Continent Oil and Gas Association.

Mr. Burdick has been retired as of December 31, 1939, after more than 37 years of active service with the company.

Mr. Tillery resigned December 15 after more than 18 years service with the company to go into business for himself as an independent operator, having acquired producing properties in the Smackover and West El Dorado fields, Arkansas. He began with Ohio Oil Co. as roustabout at Haynesville, and has held the jobs of gang pusher, farm foreman, scout, district foreman, superintendent of the Texas State Line division, and was appointed general superintendent for the Shreveport in May, 1938.

Mr. Baldwin, assistant to Mr. Burdick, succeeds him.

Mr. Lynch entered the service of the company in the Lima, Ohio, field in 1919, and in 1921 was transferred to Haynesville; and he has served as scout, farm foreman, gager, district foreman, production superintendent for South Arkansas, superintendent in charge of East Texas operations, and subsequently was sent to Shreveport as assistant superintendent. From there, he was transferred to Wichita, Kans., as production superintendent in charge of the Kansas division, and on December 15, 1939, he moved to Shreveport as general production superintendent of the Shreveport division.

S.A.E. Annual Meeting in Detroit, January 15-19

The annual meeting of the S.A.E. will be held at the Book-Cadillac Hotel, Detroit, Mich., January 15 to 19. At the transportation session Monday 10 a.m., J. A. Moller, Pure Oil Co., will read a paper on "Engine Deposits and the Effect of Some Fuel Additives." At the Tuesday morning's session Errol J. Gay, Ethyl Gasoline Corp., will talk on "Instrumentation and Its Effect on Motor-Vehicle Maintenance."

At the aircraft session Tuesday, 2 p.m., the following papers will be presented: "Availability and Characteristics of Safety Fuels," Robert E. Ellis and W. J. Sweeney, Standard Oil Development Co. "Alkylation as a Source of 'Safety Fuels,'" Dr. Raymond Haskell, Texas Co. "Safety Fuels by Catalysis," W. M. Holaday, Socony-Vacuum Oil Co., Inc.

J. J. Broeze, N. V. Bataafsche Petroleum Maatschappij, will talk on "Performance Limits of Spark-Ignition Engines and the Fuel Aspect" before the aircraft session.

Before the fuels and lubricants session, A. G. Marshall, chairman, at 10 a.m., Thursday, the following papers will be presented: "Gasoline Cars and Surveys," J. B. Macauley, Jr., Chrysler Corp. "Results of the 1939 Motor Survey," Donald Brooks, National Bureau of Standards. "The Load-Carrying Capacity of Journal Bearings," S. A. McKee, National Bureau of Standards.

At the diesel-engine session, Friday, 10 a.m., a paper will be read on "Supercharging High-Speed Four-Cycle Diesel Engines," by Robert Ramsey, Superior Engine Division, National Supply Co.

At 2 p.m. the following papers will be presented: "Effect of Fuel Viscosity on Fuel-Injection Equipment," G. W. Baierlein, American Bosch Corp., and "The Control of Smoke in the Automotive Diesel," W. W. Manville, G. H. Cloud, A. J. Blackwood, and W. J. Sweeney, Standard Oil Development Co.

Department of Manufacture N.P.A. Group Chairmen

New group chairmen of the Department of Manufacture of the National Petroleum Association have been appointed for 1940. They are: Bradford group, J. E. Turner, superintendent, Socony-Vacuum Oil Co., Inc., Olean, N. Y., succeeding W. H. Rockman, superintendent, Quaker State Oil Refining Corp., Farmer's Valley; Oil City group, Paul H. Biery, assistant superintendent, Independent refinery, James B. Berry Sons' Co., Inc., Oil City, succeeding Dr. F. E. Williams, chief chemist, Quaker State Oil Refining Co., Emlenton, and Butler group, T. M. Murphy, general manager, Daugherty Refinery, Petrolia, succeeding George M. Kirkwood, superintendent, Pennsylvania Refining Co., Karns City.

CALENDAR OF EVENTS

January 1940

SOCIETY OF AUTOMOTIVE ENGINEERS, annual meeting, Book-Cadillac Hotel, Detroit, Mich., January 15-19.

February

AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS, New York, February 12-15.

March

AMERICAN SOCIETY FOR TESTING MATERIALS, Statler Hotel, Detroit, Mich., March 4-5.

AMERICAN PETROLEUM INSTITUTE, Mid-Continent district, Division of Production, Wichita, Kans., March 14-15.

AMERICAN PETROLEUM INSTITUTE, Pacific Coast district, Los Angeles, Calif., March 19.

AMERICAN PETROLEUM INSTITUTE, Southwestern district, Division of Production, Houston, Tex., March 28-29.

April

WESTERN PETROLEUM REFINERS ASSOCIATION, annual meeting, Allis Hotel, Wichita, Kans., April 1-2.

AMERICAN CHEMICAL SOCIETY, Cincinnati, Ohio, April 8-12.

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, annual meeting, Stevens Hotel, Chicago, April 10-12.

AMERICAN PETROLEUM INSTITUTE, eastern district, Division of Production, Columbus, Ohio, April 11-12.

SOUTHWESTERN GAS-MEASUREMENT SHORT COURSE, University of Oklahoma, Norman, April 16-18.

NATIONAL PETROLEUM ASSOCIATION, semi-annual meeting, Cleveland Hotel, Cleveland, Ohio, April 18-19.

May

PETROLEUM INDUSTRY ELECTRICAL ASSOCIATION, Dallas, Tex., May 1-3.

NATURAL GASOLINE ASSOCIATION OF AMERICA, annual convention, Hotel Tulsa, Tulsa, May 15-17.

INTERNATIONAL PETROLEUM EXPOSITION, Tulsa, May 18-25.

AMERICAN PETROLEUM INSTITUTE, midyear meeting, Fort Worth, Tex. May 27-31.

June

AMERICAN SOCIETY FOR TESTING MATERIALS, Chalfonte-Haddon Hall, Atlantic City, N. J., June 24-28.

September

NATIONAL PETROLEUM ASSOCIATION, thirty-eighth annual meeting, Hotel Traymore, Atlantic City, N. J., September 18-20.

October

NATIONAL SAFETY CONGRESS, Stevens Hotel, Chicago. October 7-11.

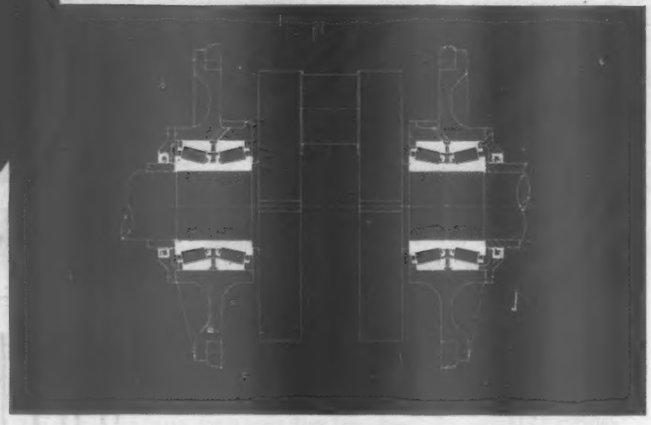
November

AMERICAN PETROLEUM INSTITUTE, twenty-first annual meeting, Stevens Hotel, Chicago. Nov. 11-15.

"Superior" Type C Horizontal Oil Field Gas Engine manufactured by The National Supply Co. Crankshaft mounted on TIMKEN Bearings.

CHECK THIS POINT WHEN BUYING NEW OIL FIELD ENGINES

Application of TIMKEN Bearings to oil field engine crankshaft, similar to that used in "Superior" engines.



The heart of any oil field engine—gas, steam or Diesel—is the crankshaft. To keep the power flowing smoothly and constantly from cylinders to point of application, crankshafts must be protected against friction and wear; radial, thrust and combined loads; and misalignment. Mounting crankshafts on TIMKEN Tapered Roller Bearings provides this protection *plus* and in doing so adds stamina and life to the entire engine. Thus, you'll find TIMKEN Bearings in a vast majority of the leading makes. It will pay you to see your new engines have them.

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Manufacturers of TIMKEN Tapered Roller Bearings for automobiles, motor trucks, railroad cars and locomotives and all kinds of industrial machinery; TIMKEN Alloy Steels and Carbon and Alloy Seamless Tubing; and TIMKEN Rock Bits.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

The rapid rate at which right-of-way can be cleared in rough country, preparatory to laying a pipe line, is the result of effective use of heavy modern equipment. An article describing a number of unique practices devised by a contractor, in the course of constructing sections of a line through the mountains of Wyoming, appears on Page 36 of this issue.

ENGINEERING & OPERATING

JANUARY 4, 1940

Aerial view of the Sunray Oil Co. refinery at Allen, Okla.

Catalytic Polymerization Unit

. . . fits well into Sunray operations

By R. L. JOHNSON
Superintendent for Sunray Oil Co.

and W. B. SHANLEY and C. H. ALBERDING
Universal Oil Products Co.

AFTER almost 1 year of consistent operation, the benefits of the small U.O.P. catalytic polymerization unit installed by Sunray at its Allen, Okla., refinery may be enumerated. Built as a part of a general-expansion and refinery-modernization program it was under construction for only 6 weeks in the latter part of 1938. When started up, no operating difficulties were raised and since that date, no unusual operating difficulties have occurred.

In this regard, F. L. Martin, vice president in charge of refining, said: "I do not believe anyone has a plant operating to better advantage." Then as a background for providing a better understanding of the manner in which the new unit operations are correlated with those of the remainder of the refinery Mr. Martin explained briefly: "The betterment program began in 1934, with the installation of a single-coil Dubbs cracking unit. This was built to operate on asphalt plant gas oil or straight Allen crude. This unit, which started in operation August 20, 1934, had a cracking capacity of 1,200 to 1,600 bbl. per day, depending upon the method of operation. The next major improvement was made in 1937, when the cracking unit was revamped for two-coil operation and its daily charging capacity was increased to 2,000-2,600 bbl. a day, again depending on the stock charged and the method of operation. At the same time the crude charging capacity of the plant was increased to 3,500 bbl. The two-coil cracking unit went into operation on July 4, 1937. Next came the poly plant, a little more than a year later."

This unit was designed by Universal Oil Products Co. engineers who have adapted the process to fit refineries of all capacities. The unit processes all the cracking-plant stabilizer gas, which amounts to 500,000 cu. ft. per day. However, the unit was designed to be oversize to take care of an increased volume of gas, up to 1,000,000 cu. ft. per day, if and when available.

The gas charged to the poly plant contains 30 to 32 per cent olefins and yields 5 to 6.5 gal. polymer gasoline per 1,000 cu. ft., depending on the age of the catalyst, or 80 to 110 bbl. of polymer gasoline daily. The significant fact is that the valuable polymer gasoline is made from a product that was formerly burned in the furnace or vented into the air.

The analysis of the gas follows:

ANALYSIS OF GAS

Composition—	Mol (per cent)
Methane	2.1
Hydrogen	0.2
Oxygen	0.1
Nitrogen	1.6
Ethylene	3.3
Ethane	18.8
Propylene	19.3
Propane	28.6
Isobutylene	4.9
n-Butylenes	8.5
Butanes	12.6
Total	100.00
Higher olefins, per cent	32.7
Density, Dumas (air = 1)	1.486

The gases are fed by a single-stage compressor to the poly plant. The compressor discharges the gas at about 180° F. to the furnace, where it is heated to proper reaction temperatures according to the age of the catalyst, the temperature being increased as the catalyst ages.

The gas enters the top of the coil in the furnace and passes downward countercurrent to the rising flue gases. Automatic control of the furnace temperature is effected by means of a Mason-Neilan diaphragm control valve operated by a Taylor temperature controller.

The gas passes from the furnace to the catalyst towers, of which there are two, filled with U.O.P. solid phosphoric acid catalyst.

An exothermic reaction takes place when the gases come in contact with the catalyst in the towers. This reaction raises the temperature by about 110° F. Most of the reaction occurs in the first tower where the temperature rises about 90°, and the remaining 20° rise takes place in the second tower.

The elevated pressure gives a high polymerization rate as well as a high throughput. Well over 96 per cent of the olefins in the gas are converted with fresh catalyst. In actual operation the percentage of conversion dropped to 70 per cent after 4 months' operation, at which time the old catalyst was removed and the towers recharged.

Stabilizer Tower

After leaving the catalyst tower, the polymer gasoline goes to a condenser. The hot polymer and the unconverted gases pass through the shell

of the condenser countercurrent to water going through the tubes and is cooled to about 180° F. at which temperature it enters the poly plant stabilizer tower.

This tower is 30½ ft. high, 24 in. in diameter and is operated at 275 to 300 lb. pressure. The temperature at the top of the stabilizer tower is governed by a shell-and-tube heat exchanger, the hot gases passing through the shell countercurrent to the water in the tubes, which are of admiralty metal ¾ in. in diameter. The temperature at the bottom is regulated by a reboiler.

Stabilization drives off the fixed gases which are included in the polymer gasoline as it comes from the condenser—mostly propane—and leaves in the polymer as much butane as seasonal vapor pressure requirements permit.

The stabilized polymer gasoline is drawn from the bottom of the stabilizer, is cooled by water in a G-fin type cooler and leaves at about 70° F., ready for treating and storage.

The new catalytic polymerization process provides the following overall refinery advantages:

1. Increases gasoline production 2 to 3 per cent based upon the quantity of crude charged.

2. Blending the output of polymer with part of the Dubbscracked gasoline produces a fuel of relatively high octane rating.

3. Using polymer gasoline in the manufacture of "Q" gasoline, Sunray tests show an approximate reduction of lead consumption up to 50 per cent, due to the high octane-blending value of polymer gasoline.

By blending the whole output of polymer with a part of its Dubbscracked gasoline the company produces a 75-octane motor fuel which sells at a premium.

Refinery Yields

Since the construction of the two-coil unit in 1937, only Allen crude of approximately 30 gravity has been used as charging stock, and several long runs of satisfactory yields have been maintained, including one 88-day continuous run and one 92-day continuous run, the latter being completed October 4, 1939.

The plant is now operating at a high rate of efficiency on a throughput averaging 3,700 bbl. per day of crude oil, and the yields are shown in the above table.

In regard to the duration of runs, the company plans to establish a 125-day continuous operation which it is understood will be the longest run of a Dubbs two-coil unit equipped with polymerization. Another interesting fact regarding the plant is that it is running strictly on Allen crude oil processed through the Dubbs unit on power furnished by gas-driven engines.

QUANTITY OF GASOLINES

Table showing characteristics of Dubbscracked and polymer gasolines made together with tests on the plant blend.

	Dubbscracked	Polymer	15% polymer 85% Dubbscracked
Gravity	56.9	71.8	59.5
Initial	111	63	90
10 per cent	158	146	148
20	184	200	206
30	213	217	206
40	238	236	232
50	261	261	256
60	282	300	280
70	308	344	302
80	333	366	327
90	360	386	360
End point	394	406	398
Loss, per cent	.8	5.0	1.3
Residue, per cent	1.2	1.0	1.2
Recovery, per cent	98.0	94.0	97.5
Peroxide number	.12	.03	.09
Copper dish gum	6 mg./ 100 cc.	8 mg./ 100 cc.	8 mg./ 100 cc.
A.S.T.M. gum	1 mg./ 100 cc.	1 mg./ 100 cc.	1 mg./ 100 cc.
Sulfur, per cent	.05	.45	.11
Octane number L-3 method	71.2	84	74.8
Blending value octane Number L-3 method	...	92.9	...

Note—The above gasolines were treated by the U.O.P. sweetening process and inhibited with .005 per cent U.O.P. inhibitor, No. 4.

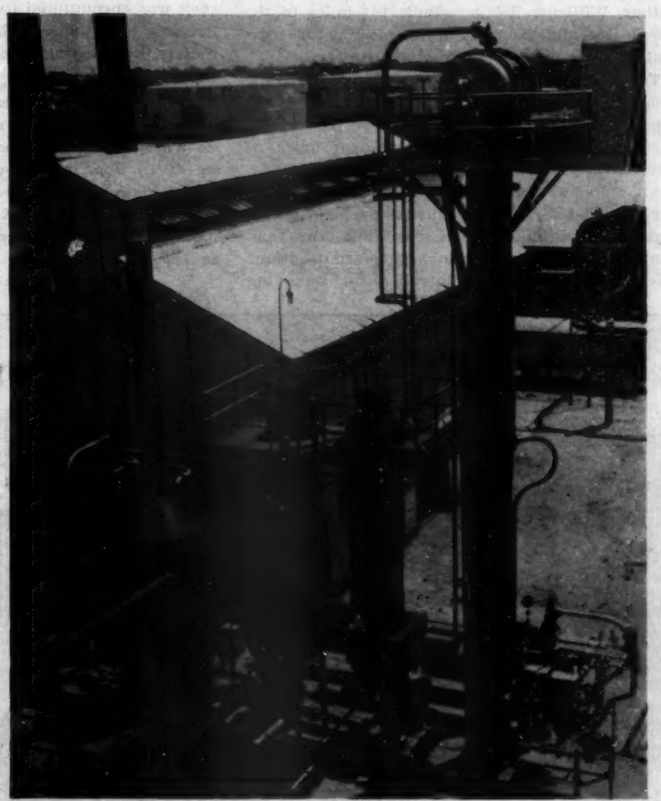
OVERALL REFINERY YIELDS

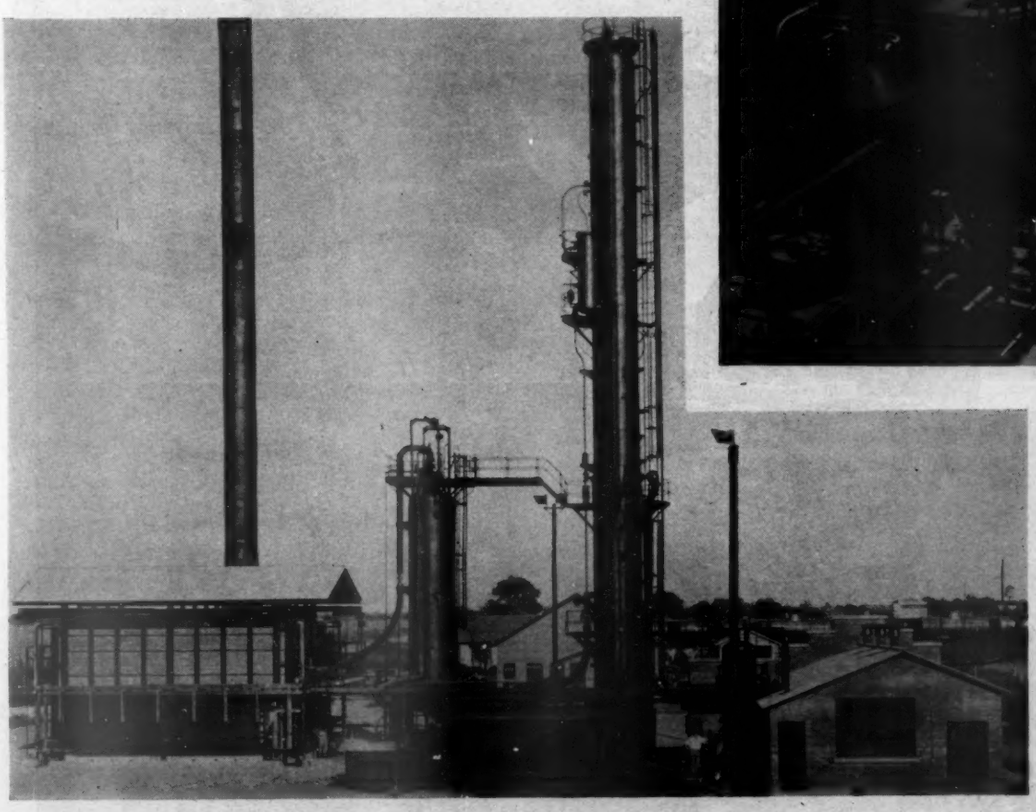
Product—	Per cent
Dubbscracked gasoline	65.17
Polymer gasoline	2.20
500 end point light gas oil	.35
Residuum	25.79
Gas and loss	6.49

Coal Is Future Source of Fuels

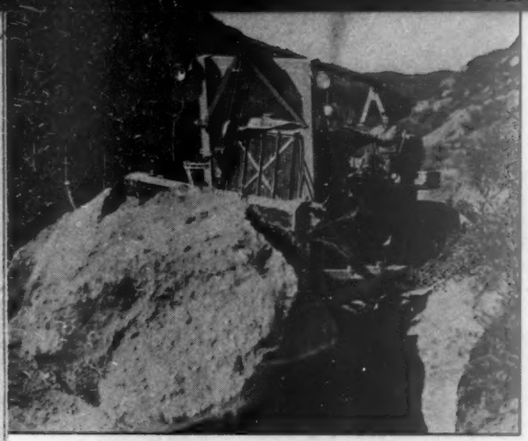
Should the petroleum reserves of the nation ever fail to furnish refiners with sufficient oil, then the vast coal deposits of the land will be called into service, says a few paragraphs in the annual report of Harold L. Ickes, secretary of the interior, made public Thursday.

Charles Potter, statistician of the bituminous coal division, estimated the coal reserves as capable of making 15,507,000,000 bbl. of gasoline, or about 10 years' supply at the present current demand. Details are to be found in the department's report.





Above: The Sunray U.O.P. catalytic-polymerization unit, which was built as part of a general expansion and refinery-modernization program. The unit was under construction for only 6 weeks. The view at the left shows the Dubbscracking unit as originally installed in the Sunray refinery. This unit has a cracking capacity of 1,200 to 1,600 bbl. per day, depending on the method of operation



Angle dozer clearing right-of-way in Lost Creek Canyon

Unique Methods In Pipe-Line Building

By PAUL REED

FAST time in the construction of new pipe lines has been made possible because of the ability of contractors to take full advantage of modern types of equipment now available. An illustration of this is to be seen in the practices followed by Williams Brothers Corp., in constructing part of the 442-mile line of Utah Oil Refining Co., built under the direction of Stanolind Pipe Line Co. A description of this project appeared in The Oil and Gas Journal, November 23, 1939, Page 32. Altogether, Williams Brothers built 181 miles of the trunk line and 28 miles of lateral line. The remainder was built by three other contractors.

To prepare the right-of-way for trucks, the ground was cleared by angle dozers of a heavy type which were able to remove loose rocks up to a size of 5 ft. across; this equipment uprooted trees with trunks as large as 2 ft. in diameter.

An innovation in pipe-lining was the use of a device called a "rooter." This was designed originally for road building and scarifying. This company utilized the rooter in a reversed position; this means that prongs intended for removing rock were held uppermost; a single prong entered the ground like a straight plow. This prong was installed originally as auxiliary equipment of the rooter. This prong extended downward for a distance of 3 ft., and as it was pulled ahead over the right-of-way it ripped the ground and underlying rock. Loose material was made out of solid material. Along most of the right-of-way, rock was a kind that was readily broken. However, hard rock was encountered for a short distance in the Laramie Mountains. By breaking ground with the rooter, the ditching machine was speeded up 80 per cent. Without the rooter, considerable blasting would have been required.

Below: Top, left—Rooter towed by tractor preceding ditcher on right-of-way in vicinity of Fort Bridger and the Wasatch Mountains, and (in circle) a rear view of the rooter. Top, right—Angle filler used for bending pipe in ditch. Bottom, left—Backfilling the ditch with tractor equipped with slack layer. Bottom, right—Construction of permanent highways in certain sections was an important part of the project. At this point the line goes over a steep hill

Three rooters, one for each spread, were used by Williams Brothers. One trench hoe was available where needed. However, the trench hoe was only used by the gang working in the Laramie Mountains. In places where it was difficult for one tractor to pull the rooter, because of unusual hardness of the underlying formations, two R.D. 8 tractors were employed, one pulling and the other pushing. Ditching was done with ditchers of the heaviest type with especially built heavy wheels.

Pipe was laid by a combination angle filler and pipe layer which had both backfilling and boom equipment. This could be used effectively for bending pipe in the ditch. Between Green River and Evanstown, Wyo., the line ran through 40 miles of land where much bending was required. In places it was necessary to make as many as 75 bends per mile. Much of this work was done with a tractor equipped with a shoe for bending joints

(Continued on Page 48)

Mixing Gases in Porous Media

By RICHARD DUCKER* and R. L. HUNTINGTON
Chemical Engineering School, University of Oklahoma

IN gas-recycling and pressure-maintenance operations, the problem of premature dilution of the original reservoir fluid is being given serious consideration, especially in the Gulf Coast region where single-phase distillate fields predominate. These so-called "gaseous" pools yield a high-gravity hydrocarbon liquid or distillate upon reduction in pressure, as a result of the phenomenon known as retrograde condensation.[1,2,3] The return of the denuded or dry gas to the reservoir is required for three principal reasons:

1. Conservation of gas as fuel.
2. Maintenance of a single-phase fluid within the reservoir.
3. Driving of the distillate-bearing fluid toward the producing wells.

The producer of a distillate pool should know how many cubic feet of dry gas are to be returned to the reservoir in order to produce a certain percentage of the original "distillate content." The ideal situation would be one in which the dry gas would push the distillate-bearing fluid forward as a piston to the producing wells without mixing taking place in the pore spaces.

*Present address, Tulsa, Okla.

This article was prepared from original data resulting from research work carried out at the University of Oklahoma by Richard Ducker in partial fulfillment of requirements for his obtaining a master's degree. The work was financed in part through the American Gas Association Natural Gas Supply Men's Fund and the following discussion of these results were presented before the Galveston meeting of the A.I.M.E.

Gilliland,[3] Lacey,[4] and Sherwood[5] have published various results on the diffusion of gases through different types of media but in no case could quantitative laboratory data be found pertaining to the diffusion or to the mixing of gases in porous media both under static conditions and also under states of flow. Gas-recycling operations have been carried out in many partially depleted oil fields in the past 25 years; however, the dependability of such data is questionable due to the many variables involved such as lack of homogeneity of the porous media, enrichment of the recycled gas coming into contact with reservoir liquids, etc.

Static tests.—The rate of mixing in porous media under static or nonflow conditions was determined by small-scale tests (Fig. 1) in which gas and air were allowed to diffuse in opposite directions through sand-packed tubes. Complete mixing of the two fluids was considered to have taken place when the contents of each flask analyzed 50 mol per cent of each constituent.

Flow tests.—Since a state of flow is set up in the producing of any reservoir, two types of flow were studied: (1) one-dimensional, and (2) three-dimensional.

Although the average field presents two dimensional flow conditions, the mechanical difficulties in perfecting a satisfactory laboratory model precluded studies along this line.

The one-dimensional flow tests were made in a vertical 4-in. pipe (Fig. 2), 58 in. in height, in which Wilcox sand was packed to a porosity of 38 per cent, and a permeability of 5.1 darcys. The walls of the pipe were covered with shellac and coated with sand in order to reduce gas slippage along the interior surface. The oxygen content of the effluent mixture was determined frequently during each experimental run.

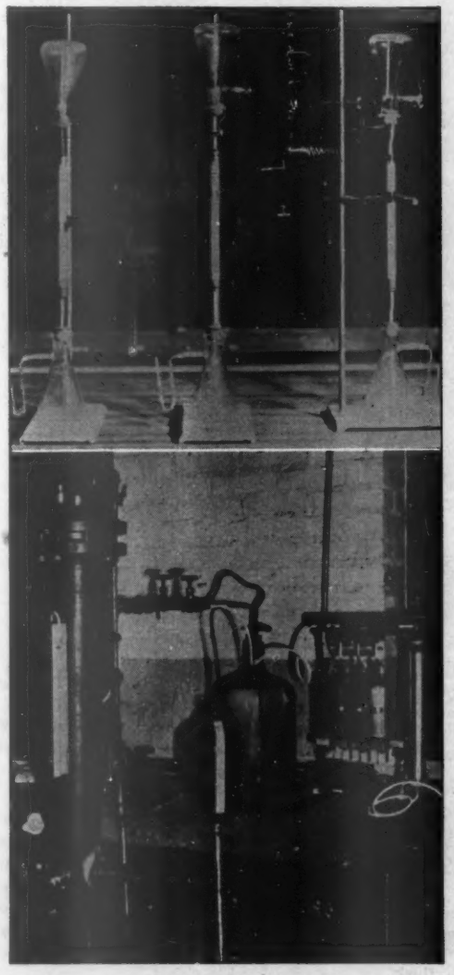


Fig. 1—Small scale apparatus for study of gaseous diffusion under nonflow conditions. Sand-filled tube = .765 in. I.D. × 10 in. in length

Fig. 2—One-dimensional flow—4-in. tube = 4.026 in. I.D. × 58 in. in length

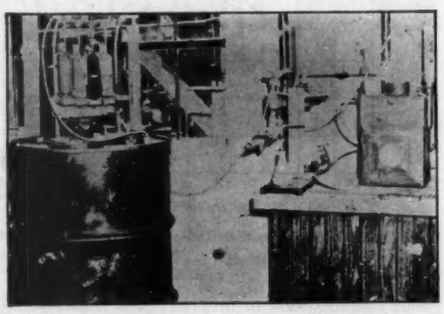


Fig. 3—Photograph of three dimension-flow apparatus

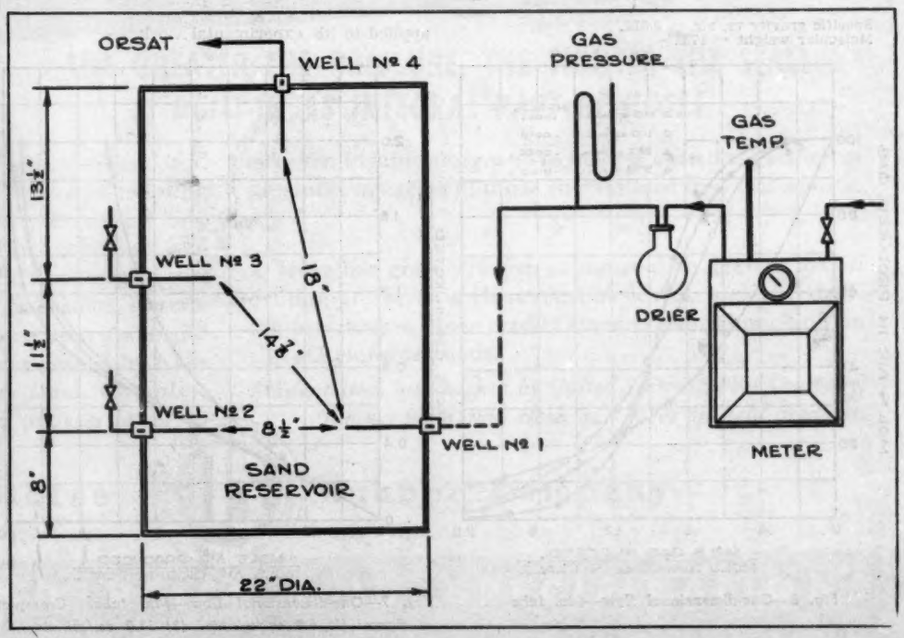


Fig. 4—Diagram of apparatus used in three dimensional-flow tests

The three-dimensional flow runs were carried out in a 55-gal. drum into which four small-diameter wells were inserted a sufficient distance to minimize the wall effect in the flow of gas from one well to the other. Figs. 3 and 4 show, respectively, photographic and diagrammatic views of the apparatus. Flows were made in both directions—upward and downward in the 1-3 and 1-4 well combinations in order to find the effect of gravitation, if any, as the result of the mixing of the two gases of different densities. These tests were conducted in the same manner as the one-dimensional runs with the exception that the sand had to be removed and sifted after each run since thorough purging was practically impossible if the sand were left in the drum.

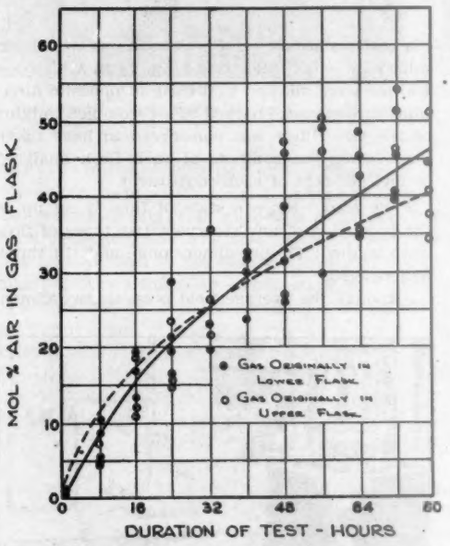


Fig. 5—Static-difussion tests (air-gas). ——Experimental. . . . Theoretical. See Equation 2

Materials Used

GAS ANALYSIS

	Mol per cent
CH_4	88.2
C_2H_6	8.9
N_2	2.8
CO_2	0.1
	100.0

Specific gravity vs. air. = 0.612.
Molecular weight = 17.6.

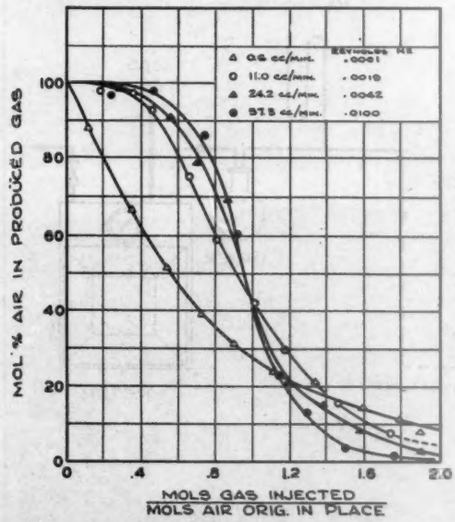

MOL % AIR IN PRODUCED GAS
MOLS GAS INJECTED / MOLS AIR ORIG. IN PLACE
△ 0.6 cc/min. Reynolds No. .0081
○ 11.0 cc/min. .0019
▲ 24.2 cc/min. .0042
● 57.3 cc/min. .0100

Fig. 6—One-dimensional flow—4-in. tube

SAND ANALYSIS

Wilcox unconsolidated sand from an outcrop near Roff, Okla. Grains are well rounded and show the following:

Tyler mesh (Retained on screen)	Per cent by wt.
24	0.92
35	0.70
50	1.80
65	13.90
100	57.90
150	18.68
200	5.10
Pan	1.00
	100.00

Discussion of Results

Static tests.—The static or nonflow tests are presented in Fig. 5 in which the diffusion of air through the sand-packed tube into the gas flask is shown in relation to the time variable. From Fick's[21] law of diffusion, one might expect the gas to find its way into the air-filled flask more rapidly than the air would travel into the gas flask. This phenomenon did not occur, however, as evidenced by the fact that the pressures remained the same in each flask throughout each run. Furthermore, analyses were made of the contents of each flask after a number of runs and in each case it was found that the mol fraction of either the air or the gas in one flask was the complement of the corresponding mol fraction in the other flask.

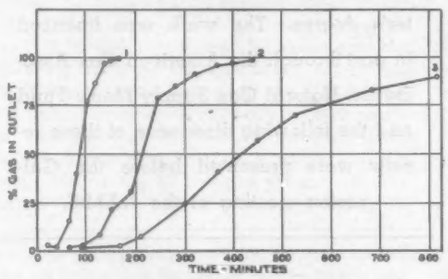


Fig. 8—One-dimensional flow

Curve No.	Velocity cc./min.
1	57.2
2	24.2
3	10.8

Smith[20] has reported experimental work on the diffusion of two gases in a tube, divided in the center by a removable diaphragm. It was found by Smith that an equation derived from the fundamental diffusion law:

$$\frac{\delta p}{\delta t} = D\frac{\delta^2 p}{\delta x^2} \qquad (1)$$

applied to his experimental work.

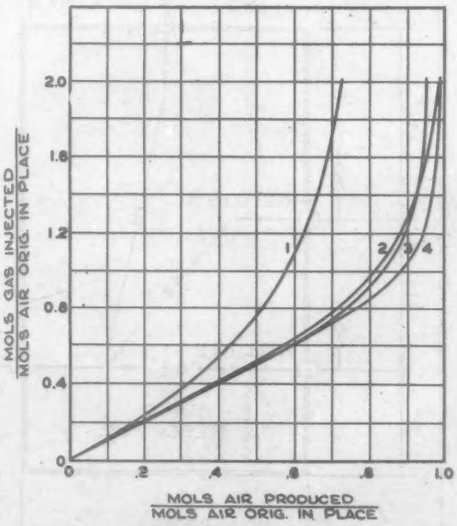


Fig. 7—One-dimensional flow—4-in. tube. Crossplot of figure: (1) 0.6 cc./minute. (2) 11.0 cc./minute. (3) —24.2 cc./minute. (4) —57.3 cc./minute

This equation is:

$$F = 1/2 - \frac{4}{\pi^2}\left(e^{-\left(\frac{\pi}{2}\right)^2 \frac{Dt}{R^2}} + 1/9\, e^{-9\left(\frac{\pi}{2}\right)^2 \frac{Dt}{R^2}} + \text{---------}\right) \qquad (2)$$

Where F is the mol fraction of the original gas left in one-half of the tube, D is the diffusion coefficient for the two gases used, t is the time of diffusion, and R is one-half of the length of the tube. Application of the data to Equation 2 gives a path "R" for the gas, a length 25 times as great as it would be in an open tube.

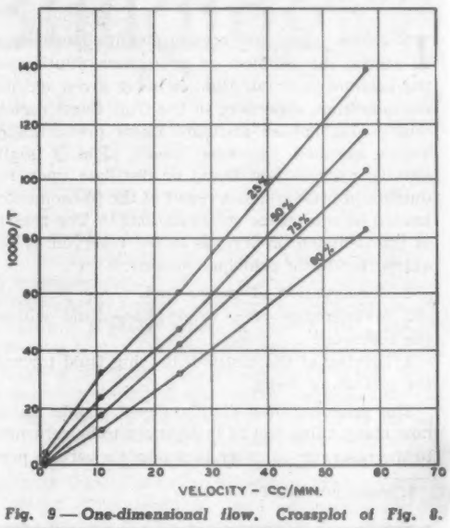


Fig. 9—One-dimensional flow. Crossplot of Fig. 8. Reciprocal of time required to obtain certain mol percentages of gas at the outlet as a function of velocity

In arriving at the theoretical curve, it was arbitrarily assumed that the experimental values near the middle of the time period would fall nearest to the true theoretical value. The lag in the experimental curve in the early periods was no doubt due to the fact that gas filled the sand-packed tube at the start. The higher experimental values in the later periods was probably caused by the diffusion of air through the interconnecting rubber tubing.

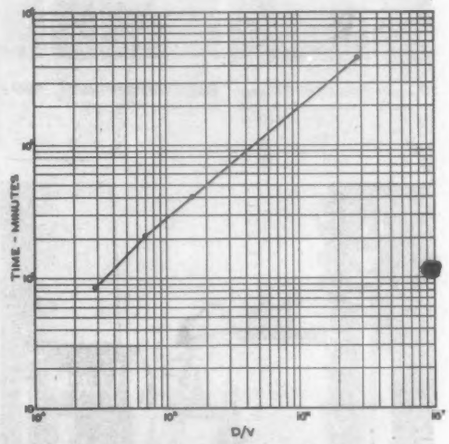


Fig. 10—One-dimensional flow. Relation between D/V and time for complete mixing at outlet. Crossplot of Fig. 8

Within the experimental error, there was no noticeable difference in the diffusion rates whether the gas was originally in the lower or in the upper flask.

One-Dimensional Flow

Due to the complexity of the mechanism of the intermixing of two gases when the flow of one causes a second initially stagnant gas to move forward in porous media, an empirical attack has

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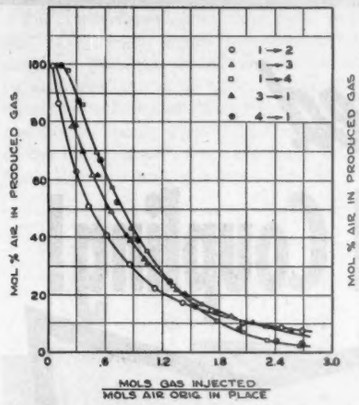


Fig. 11—Three-dimensional flow, 0.082 cu. ft./min. See flow diagram in Fig. 4

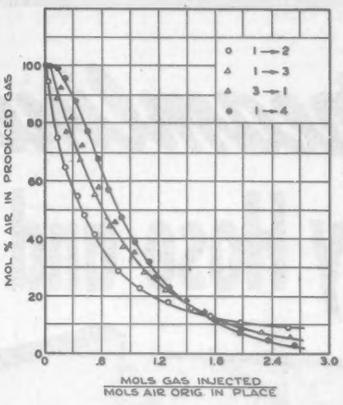


Fig. 12 Three-dimensional flow, 0.046 cu. ft./min.

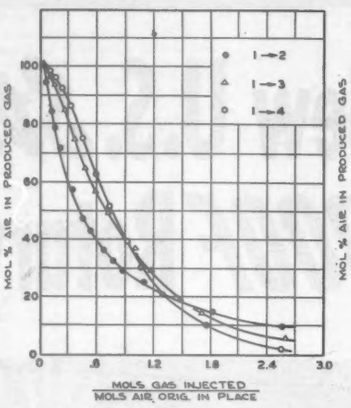


Fig. 13—Three-dimensional flow, 0.018 cu. ft./min.

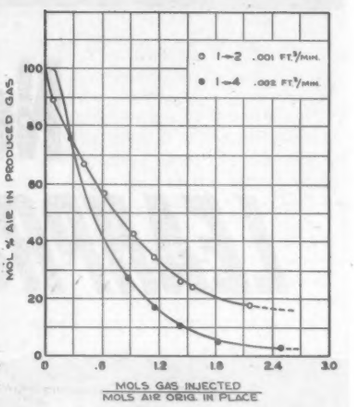


Fig. 14—Three-dimensional flow

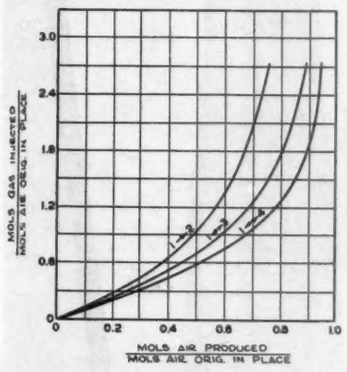


Fig. 15—Three-dimensional flow, 0.082 cu. ft./min. Crossplot of Fig. 11

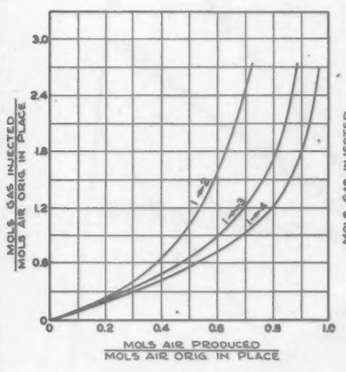


Fig. 16—Three-dimensional flow, 0.046 cu. ft./min. Crossplot of Fig. 12

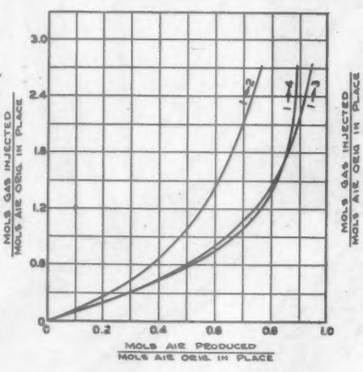


Fig. 17—Three-dimensional flow, 0.018 cu. ft./min. Crossplot of Fig. 13

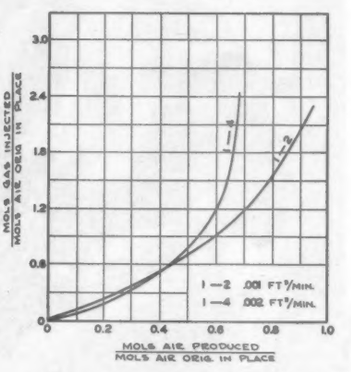


Fig. 18—Three-dimensional flow. Crossplot of Fig. 14

been considered the safest approach in the analysis of the data. The highest Reynold's number which was attained in the one-dimensional flow tests was about 0.01 in consistent units. According to Muskat[7] and Fancher and others,[1] turbulent flow begins in porous media at Reynold's numbers of approximately 1.0, therefore the flow in all of these tests was evidently viscous in nature.

Original experimental data are shown in Fig. 6 for four runs of Reynold's numbers from 0.0001 to 0.01. From these curves it is easily seen that the gas finds its way into the exit stream proportionately quicker with the slower injection rates.

A crossplot of the above data in Fig. 7 presents a clearer picture of the efficiency of the displacement of air. For example, a flow of 0.6 cc. per minute of gas requires two volumes of gas to displace 0.72 volumes of air, whereas a rate of 57.3 cc. per minute will result in the displacement of 0.98 volumes of air with two volumes of gas.

The original data for three of the one-dimensional runs are presented again in Fig. 8 with the diffusion of gas into the outlet of the tube in its relationship to time.

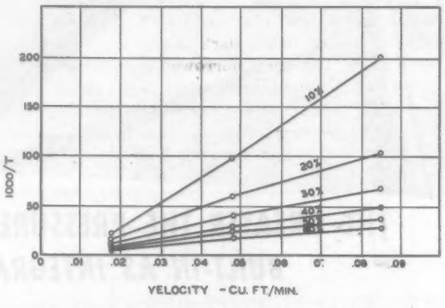


Fig. 22—Three-dimensional flow. Wells 1-3. Time reciprocal and velocity. Crossplot of Fig. 20

A crossplot of these three runs in Fig. 9 shows the reciprocal of time required to obtain certain

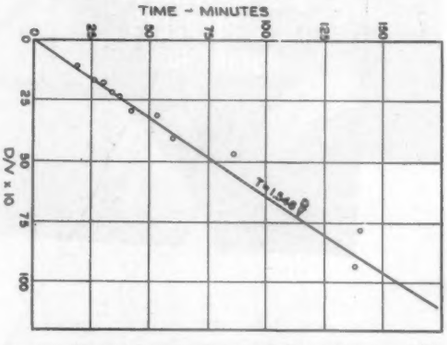


Fig. 23—Three-dimensional flow. Relation between D/V and time for complete mixing at outlet

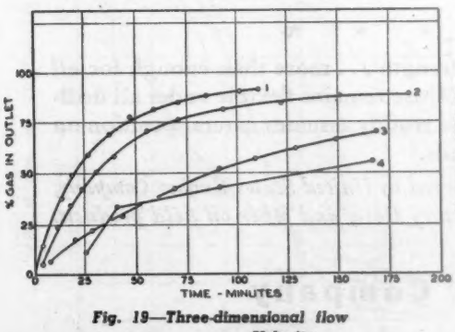


Fig. 19—Three-dimensional flow

Curve No.	Velocity cu. ft./min.	Direction
1	0.083	1-2
2	0.047	1-2
3	0.018	1-2
4*	0.0016	1-2

*T scale = T/10.

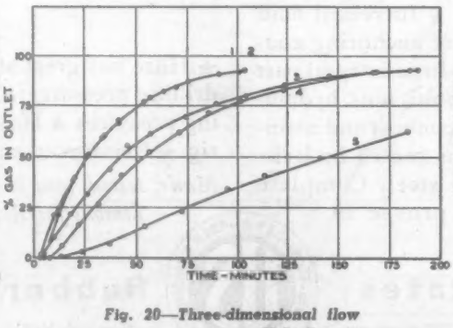


Fig. 20—Three-dimensional flow

Curve No.	Velocity cu. ft./min.	Direction
1	0.083	3-1
2	0.085	1-3
3	0.048	1-3
4	0.046	3-1
5	0.018	1-3

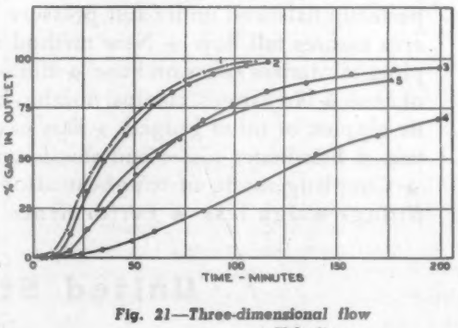


Fig. 21—Three-dimensional flow

Curve No.	Velocity cu. ft./min.	Direction
1	0.081	1-4
2	0.0775	4-1
3	0.044	4-1
4	0.019	1-4
5*	0.003	1-4

*T scale = T/10.

percentages of gas at the outlet as a function of velocity.

The time variable in its relationship to the ratio (D/V) Fig. 10 gives a straight line on logarithmic paper for complete mixing (50 per cent air-50 per cent gas) at the outlet of the tube, where D equals length of tube in inches and V equals velocity in cubic feet per minute.

Three-Dimensional Flow

This type of flow might be duplicated to a certain degree in a deep-seated salt dome, or in any formation where the thickness of the sand might be a fairly large fraction of the distance between the well locations. Three different input and output-well combinations were provided in the drum so that the flow could be made horizontally, vertically, and at a 45° angle in either direction. The Reynold's numbers for these runs were somewhat difficult to estimate since the flow density no doubt varied from place to place, it being the greatest in a direct line between the input and output wells. The most conservative estimate, however, gave a Reynold's number of less than 0.1 for the fastest run.

The original flow data in terms of the air percentages in the outlet gas are shown in their relationship to the amount of gas injected in Figs. 11, 12, 13, and 14. In these runs the rate of gas injection was varied for the different input and output-well combinations. Crossplots 15 to 18, inclusive, have been made from Figs. 11 to 14, respectively. These graphs show that at the higher rates of flow the efficiency of the displacement in the reservoir is higher for the wide spacings. For extremely slow rates the close spacing gave more favorable results.

The original data are shown again in Figs. 19 to 21, inclusive, with gaseous diffusion in its relationship to time. The striking similarity in the shape of these curves to that of the history of the temperature change of any point in a body being heated by a batch or unsteady heat-flow process, leads one to believe that the two processes are somewhat analagous in nature.

A crossplot of Fig. 20 is shown in Fig. 22. As in the case of one-dimensional flow the reciprocal of the time required to obtain certain percentages at the outlet as a function of velocity gives substantially straight lines.

The correlation of time versus D/V or (distance of travel)/(volume per unit of time) gives a straight-line relationship on Cartesian coordinates.

Conclusions

Although the theory[4] points out the likelihood of much slower diffusion between gases at higher reservoir pressures, it appears that the dilution of rich distillate gas with the dry recycled gas will present a problem which must be solved lest the economic productive life of a field be shortened due to high and prohibitive recycling ratios. Until a mass of data can be accumulated showing the effects of such variables as injection rates, well spacing, gas densities, permeability, porosity, etc., the empirical method of attacking the problem seems to be the logical approach. It is the hope of the authors that this attempt to throw some light on the nature of gas mixing and dilution in porous media will serve as a stimulus for other investigators to take up the study of this phase of the flow of fluids.

Acknowledgment

The authors wish to express their appreciation to the American Gas Association, Natural Gas Supply Men's Fund Research Fellowship for the financial assistance its members gave in sponsoring this research, to D. T. MacRoberts, G. A. VanLear and Morris Muskat for helpful suggestions in correlating the data empirically, and to the following engineering students: L. Naifeh, E. C. Taylor, and G. E. Viele, for the assistance they gave in constructing the apparatus and in securing the experimental data.

Literature Cited

1. Fancher and others, Bull. No. 12, Pa. State Expt. Sta. (1933).
2. Foran, E. V., Petr. Dev. and Tech., p. 22, A.I.M.E. Trans. (1938).
3. Gilliland, E. R., Ind. Eng. Chem., 26, 681 (1934).
4. International Critical Tables, Vol. 5.
5. Katz, D. L., and Hachmuth, K. H., Ind. Eng. Chem., 29, 1072 (1937).
6. Lacey, W. N., and others, Ind. Eng. Chem., 26, 652 (1934).
7. Muskat, M., Flow of Homogeneous Fluids Through Porous Media, McGraw-Hill Book Co., New York, 1937.
8. Reid, L. S., and Huntington, R. L., Oil Weekly, p. 23, Feb. 13, 1939.
9. Sherwood, T. K., and Reed, C. E., Applied Mathematics in Chem. Engr., McGraw-Hill Book Co., New York, 1939.
10. Smith, A. S., Ind. Eng. Chem., 26, 1167 (1934).
11. Taylor's Physical Chemistry, D. Van Nostrand Book Co., New York City.

The original data in this paper were taken from a thesis submitted by Richard Ducker in partial fulfillment of the requirements of the master of science degree in engineering, University of Oklahoma, June 1939.

SAFETY – Boiler for Treating Has Unique Equipment

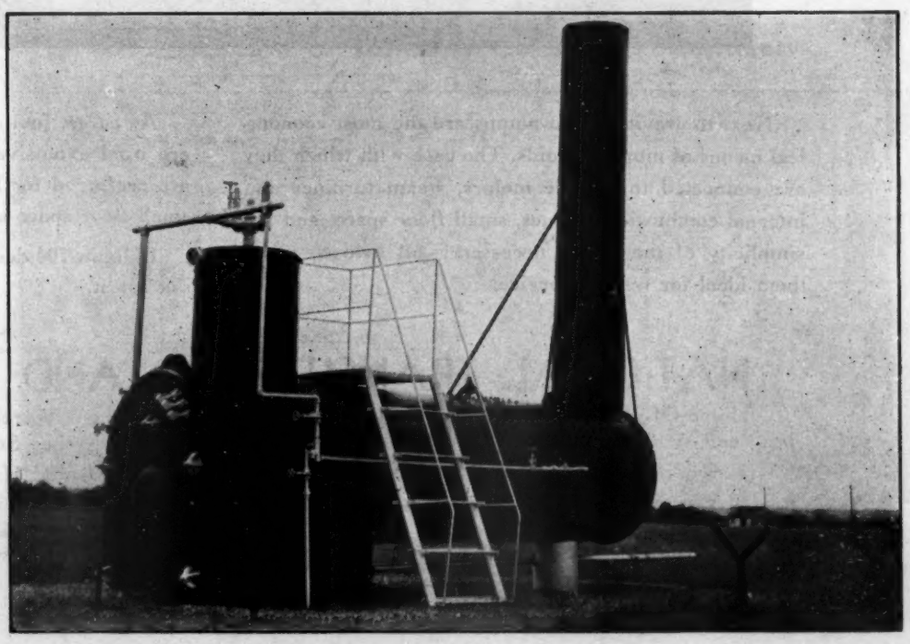
STEAM boilers are used on most leases for a variety of purposes but are mainly required for the breaking of emulsions or for operation of the transfer pump. In many cases the boilers are converted into treating units in which the oil is introduced directly into the boiler and heated, circulation in and out of the gun-barrel tank being by the thermosiphon system.

Generally these boilers are operated at a very small fraction of their original rating, the pressures required for treating being very low; even when driving the transfer pump the pressure is seldom 50 per cent of the rated operating pressure. There is therefore little danger of the boiler's exploding except through lack of water.

Lease operations are carried on during the entire 24 hours and the pumper must often make adjustments to the boiler at night. The accompanying picture shows a stairway which allows the pumper to get on the barrel of the boiler for closing and opening the valve on the dome. In most cases a ladder is used for this purpose but it is hard to find in the dark and in many instances the ladder has been borrowed and is not at the boiler when the pumper wants to get to the dome valve. Climbing on the connections to reach top of the boiler is extremely risky as they are designed to withstand pressure and not weight and might break under the load. There is also the danger of falling from the barrel of the boiler. Due to the isolation of the leases and the fact that the pumper is generally alone, a broken leg or any incapacitating injury would be extremely serious as the injured would have to lie there until found by his relief. The ladder and platform are made from junk equipment.

Instead of the usual guy wires, this boiler is made safer by the use of rods which are fastened to the boiler; this prevents anyone from tripping over the guy wires at night. The blow-off line is held in position by running it through the pedestal which supports the barrel of the boiler; the open end of the line cannot fly up and tear the connections loose when the blow-off valve is opened. The general cleanliness of the boiler and the surrounding ground makes a much safer working place as there is no danger of a workman falling against the boiler or any of the equipment.

An important feature on any boiler, regardless of its use, is some provision for tripping the pop valves on the dome. Some firemen and pumpers have a long rod with which they can trip the pop valve; others attach a piece of guy wire long enough to be reached from the ground. The pop valves should be tested each 24 hours and preferably each 8 hours to prevent their becoming stuck.



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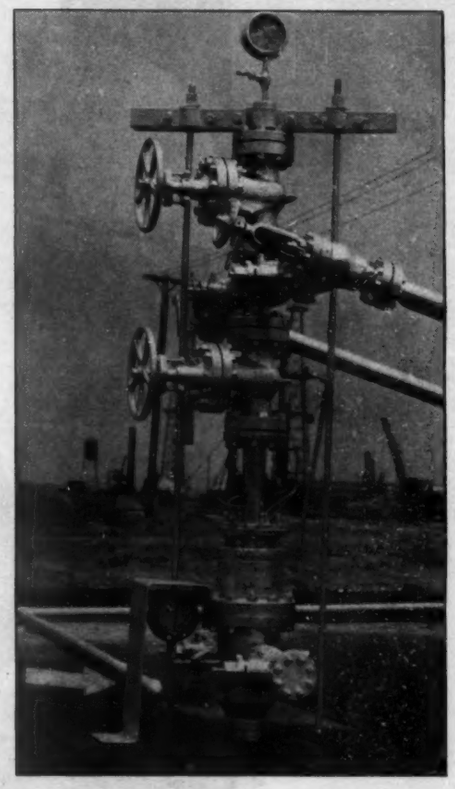
Gas Engine Under A-Frame

A producing company in California makes a practice of installing pumping units so that the gas engine is mounted under the A-frame. By doing this, smaller floor space is required. Since skids are 3 ft. shorter than they otherwise would be, the unit is more readily portable.

Guard for Casing-Pressure Gage

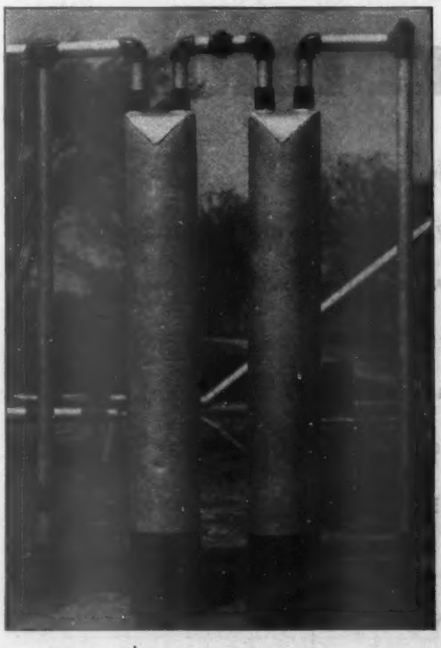
Pressure gages on the tubing and casing are necessary if the operator is to know the condition of his well, but keeping the casing gage intact is a difficult proposition. Connections for the gage, while more than strong



enough to withstand the pressure, are easily broken by a slight blow. This operator in the Long Beach, Calif., field has his casing gages guarded by a heavy piece of sheet metal which bolts to the combination tubing support and packer.

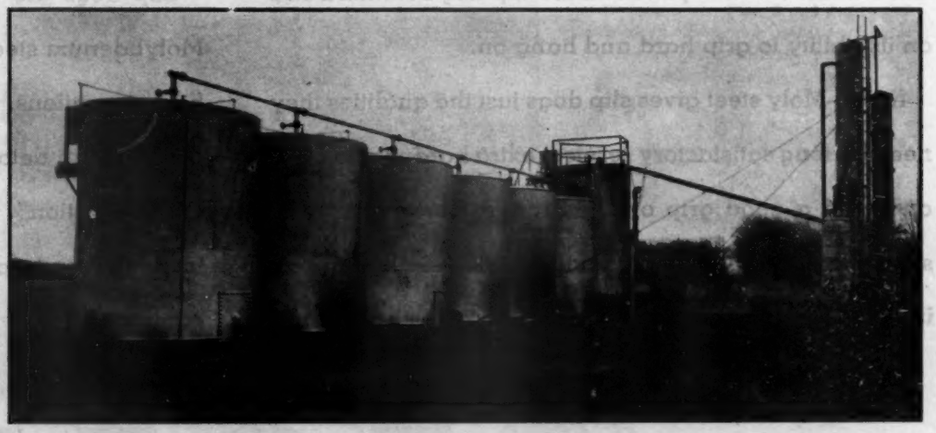
Operating Ideas

Double Trap for Vent Line



There is always danger of a separator becoming overloaded, allowing the oil to enter the vent line. Oil spraying from vents may be a source of a bad fire and property owners are annoyed when their houses are sprayed with oil. To prevent any oil from getting into the vent line, a double trap has been installed on one Mid-Continent property. This trap will hold any oil that might escape from the separator; the switcher on the lease can drain the traps through the 2-in. valves at the bottom.

Anchoring of Tanks to Concrete Foundation



An operator in the Chanute field, Kansas, finds it necessary to securely anchor tanks to foundations in order to prevent their floating away during periods of high water when the property is inundated. Foundations are made of concrete blocks in which 2-in. tubing is cemented. Tanks are anchored by lines lashed to the tubing and passing over the top of the tanks.

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Progress in METALS

By W. L. NELSON

Heat Treating by the Oxyacetylene Process

FLAME hardening is now recognized as a valuable process by most engineers and welders, but little attention has been given to the general applicability of other localized heat-treating operations. The paper entitled "Flame Treating," By J. H. Zimmerman, presented before the American Welding Society in Chicago, October 1939, discusses some of the less-known operations such as flame softening and flame strengthening; as well as flame hardening.

In connection with flame hardening, Mr. Zimmerman presents Figs. 1 and 2, reproduced here. The first of these shows that the higher the skin temperature, the greater the depth of hardening, and Fig. 2 shows that the slower the rate of heating, the greater the depth of hardening.

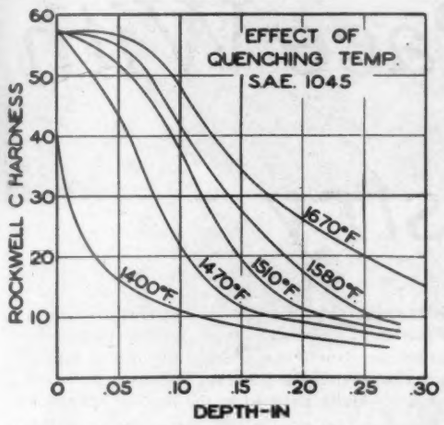


Fig. 1—Curves showing the relation between surface temperature, as measured by means of an optical pyrometer, and case-hardness contour. (Graphs courtesy Linde Air Products Co.)

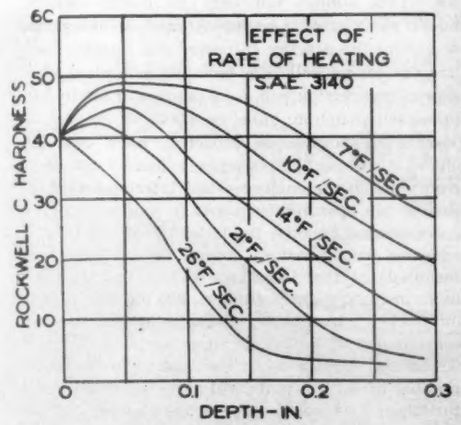


Fig. 2—Curves showing the relation between rate of heating and case-hardness contour

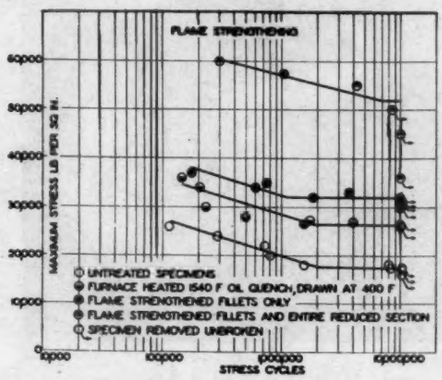

FLAME STRENGTHENING
MAXIMUM STRESS LB. PER SQ. IN.
STRESS CYCLES
UNTREATED SPECIMENS
FURNACE HEATED 1540 F OIL QUENCH, DRAWN AT 400 F
FLAME STRENGTHENED FILLETS ONLY
FLAME STRENGTHENED FILLETS AND ENTIRE REDUCED SECTION
SPECIMEN REMOVED UNBROKEN

Fig. 3—Graphical representation of fatigue-test results showing determination of endurance limits

Whereas in flame hardening, the purpose of the operation is to heat the surface to a critical temperature and then cool rapidly to gain a hardened constituent, the operation of flame softening involves delaying the cooling of a hot metal to such an extent that hardening does not occur or to heat a hardened material to a critical temperature and then delay cooling by continued application of a flame. Industrial applications of flame softening include: Local annealing of carburized parts to permit drilling or machining; the local softening and refining of finished weld passes; the annealing of work-hardened parts such as sheared edges; and the softening of the edges of flame-cut parts. The last use is particularly important for the air-hardening types of alloy steels which in some instances exhibit flame-cut edges that are lacking in toughness, ductility or even machinability. Flame softening is conducted by using a flame for preheat, postheat or both, to such a degree that the rate of final cooling is suitably decreased. The heat may be applied directly to the edge, to the plate on each side of the cutting torch or to both sides of the plate, depending upon the particular job.

Flame strengthening is similar to flame hardening except that it is practiced for the purpose of gaining strength at highly stressed regions of a part, rather than wear resistance. A direct application is the strengthening of the fillets or notches of parts that are exposed to conditions of fatigue. It is well known that fatigue failures tend to occur at notches or sharp changes in the cross-sectional dimension. Obviously, it is much cheaper to strengthen only the offending fillet of a large object than to strengthen the entire piece. Field tests of flame-strengthened objects are not yet available, but laboratory results on fatigue-test specimens are shown in Fig. 3. Notches are particularly important in underground oil-field equipment and since the great length of some of this equipment precludes furnace-heat treatment, the method of flame strengthening may prove to be significant.

New Telescopic Portable Derrick

THE Shell Oil Co., Inc., in cooperation with the Franks Manufacturing Corp. has developed a portable telescopic-type derrick which can be used to "pull" wells or even for drilling by the rotary method to depths of more than 6,000 ft. Portable derricks which could handle single joints have been in use for years, but in order to handle double lengths of tubing it was necessary to devise a telescopic derrick having a total height when extended which is the same as the regular 87-ft. permanent derricks. The placement of the derrick in the field is indicated in Figs. 1, 2 and 3.

In order to gain strength and at the same time keep the weight low enough for a truck, S.A.E. 3140 nickel-chromium steels are used in various parts of the equipment such as gears, shafting, sprockets, etc., in the winches, the power takeoff for driving the winch with the truck motor and the power screw that raises the derrick. Most of these parts are heat-treated to a Brinell number of 387 but bearings are sometimes hardened to 500 Brinell. The nut on the raising screw is made of Sabeco 11-Hg. self-lubricating bronze which contains about 10 per cent of tin and 20-22 per cent of lead. The nut is protected from sand by a synthetic rubber wiper.

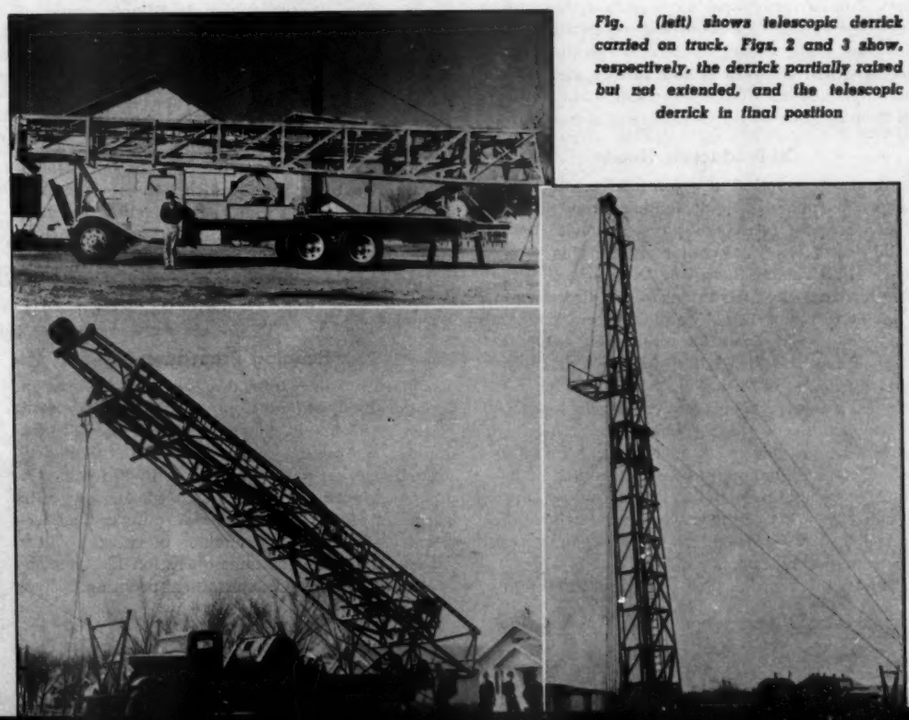
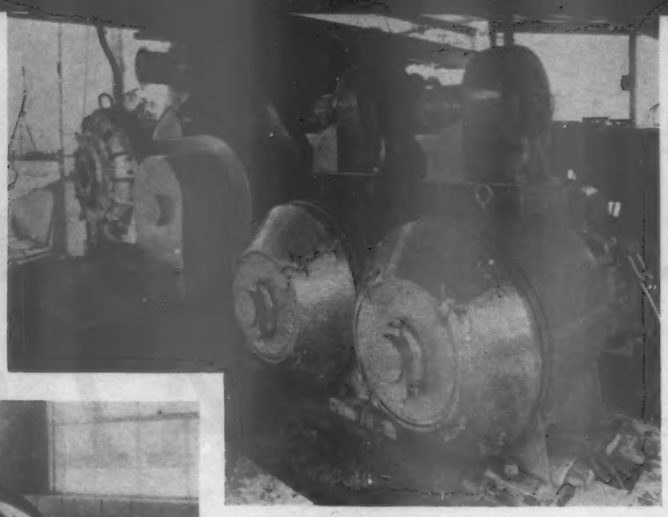


Fig. 1 (left) shows telescopic derrick carried on truck. Figs. 2 and 3 show, respectively, the derrick partially raised but not extended, and the telescopic derrick in final position



Upper left: At this new gasoline pipe-line station the control room for the electrical equipment is separated from the pump room by a vapor-tight wall with large wired-glass section for viewing the pumps from the operator's position

Above: Draw works driven by twin 350-hp. variable-voltage motors. This drive is capable of delivering a total torque corresponding to 1,400 hp. Even larger rigs of this type are in prospect

Left: This 500-hp. unit is one of several large explosion-resisting motors installed in gasoline pipe-line service in 1939. Protective devices safeguard the pump and motor, while control of unit is automatic in accordance with pipe-line pressure conditions

Electricity Keeps Pace With the Petroleum Industry

By M. A. HYDE
Petroleum Industry Engineer, Westinghouse Electric & Manufacturing Co.

IN viewing the progress made during the past year in the design and application of electrical equipment for the petroleum industry, one is impressed with the fast-moving nature of this industry and with the extent to which electricity is employed in its varied operations from drilling rig to service station. This condition requires continual advance in the design of electrical equipment. It seems worth while to review briefly some of the accomplishments of the electrical manufacturers in keeping pace with this fast-moving industry.

Oil-Production Needs

In the production division the trend toward deeper and more difficult drilling is not new, but it has brought forth new appreciation of the capabilities of electrical equipment for this type of work. Particularly there has been further demonstration of the advantages of direct-current variable-voltage drilling equipment from the standpoints of smooth operation minimizing equipment stresses, ease and flexibility of control, and torque multiplication permitting delivery of high-overload torques without exceeding a predetermined load on the prime mover. Only by witnessing the performance of rigs of this type under difficult conditions of pulling and mud-pump operation can one appreciate the smoothness with which torques up to double the rating of the motor can be delivered at extremely low speeds without imposing an overload upon the power source.

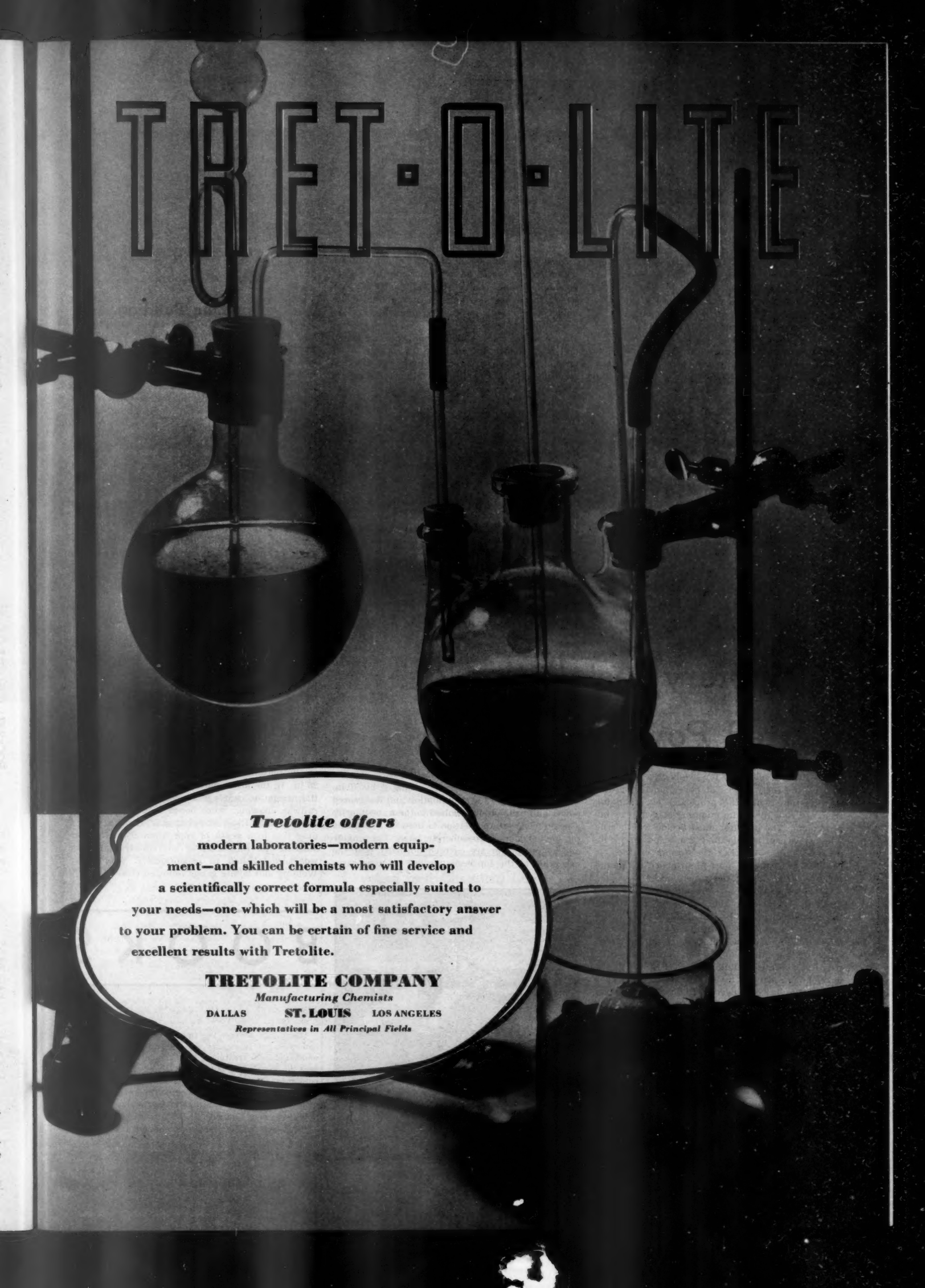
The trend toward electric drive in oil-well pumping is continually increasing. In Illinois, center of greatest recent activity, it is significant that two of the producing companies have a combined total of some 1,500 wells pumping by electric power. Aside from the more generally recognized advantages of electric power, there are two factors that are becoming increasingly appreciated. One is the adaptability of electric drive to wells on difficult terrain. The other is convenience in the control of electrically operated wells, particularly where it is desired to pump part time. Here the automatic time switch provides a ready means of staggered operation for various units in accordance with a predetermined operating schedule for the property as a whole.

Refining Procedure

Modern refining units, due to their complication and relatively extended physical layout, present major problems in process control and at best impose an exacting job upon the operating personnel. This is particularly true in the catalytic processes more recently introduced, due to cyclic operation of the catalyst for purpose of regeneration. Thus increasing numbers of valves require supervision and sometimes operation in strict accordance with a predetermined program. Electricity vastly simplifies the job of the control-room personnel, through the use of suitable motors and control for remote operation of the valves, and in some cases automatic program control of the entire group of valves involved in the process operation.

Refineries are increasingly using motor starters and switching equipment suitable for operation under explosion-hazardous conditions, capable for outdoor exposure, and designed to resist the corrosive elements prevalent in this service. This applies not only to motor control, but in many cases it has been found advantageous to extend the practice to power and lighting control devices as well. For example, one plant now under construction will use a number of totally oil-immersed switching units, on 2,300-volt circuits of 50,000-kva. short-circuit capacity. Each unit includes disconnecting switches manually operated from outside the enclosure and interlocked to insure proper operating sequence in connection with its associated breaker, the latter being electrically operated from a remote control switch. The line terminals of the disconnect switch are enclosed in an insulating compartment. The oil tank is also interlocked with the disconnect switch to prevent continuance of voltage on those parts of the unit which are exposed when the tank is lowered. A number of similar units will serve as starters for the larger 2,300-volt motors in this plant.

The trend toward oil-immersed equipment is further indicated by the appearance of a low-voltage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circuit breaker in ratings 600 volts 600 amp. and below, in individual oil-immersed housings.

For the control of lighting circuits, assemblies of small thermal trip breakers are now available in weatherproof oil-immersed enclosures suitable for location in hazardous and corrosive atmospheres. Since these lighting panel boards frequently control circuits that are exposed to widely different temperature conditions and since the panel boards are often subjected to direct sun radiation during part of the day, causing wide variations in temperature of the oil bath, the breakers are designed for practically constant operating characteristics independently of the temperature of the surrounding oil. This is achieved through a compensating bimetal which responds only to the oil-bath temperature, and by its deflation modifies the motion of the main tripping bimetal in such manner as to make the breaker calibration practically insensitive to changes in the temperature of the surrounding oil.

Increased Motor Capacity

One of the outstanding developments of the past year is a striking increase in the capacity of motors built with explosion-resisting construction for driving the larger pumps in refineries and on pipe lines. For some time explosion-resisting motors have been available in ratings up to 400 hp. at 3,600 r.p.m., their construction being such as to withstand ignition of an explosive gas mixture within the motor housing without passage of flame to the surrounding atmosphere. Larger ratings have presented considerable problems in physical proportion and ventilation.

In the past it has been common to install enclosed units, force-ventilated from an air supply considered safe; a frequent objection to this practice is the difficulty of obtaining reliably safe air. As another answer to the explosion-hazard problem, the inert gas-filled motor has been produced. Such units comprise a closed ventilation system filled with inert gas maintained under low pressure to prevent infiltration of outside air. Circulation of this internal atmosphere by a fan on the rotor picks up the heat from the active parts of the motor and transfers it to water coolers built into the motor housing. The construction involves a considerable number of auxiliaries including the water cooler, water supply and control system, gas supply and control system, and gas seals where the motor shaft passes through the motor housing, the seals ordinarily requiring an oil-circulating system.

Such accessories which complicate operation and maintenance and increase the danger of abnormal shutdown, are avoided by newly designed explosion-resisting motors extending to ratings of 1,000 hp., 3,600 r.p.m. These motors use the dual-ventilated or "heat exchanger" frame construction long proved satisfactory in units of smaller rating. They require no auxiliary apparatus; even the bearings are self-lubricating ring-oiled. Complete independence of gas, air or water supply makes for greater simplicity and dependability.

Several motors of this type were installed in refineries and pipe-line stations during 1939. One of the notable pipe-line installations of the year was the enlargement of Shell Oil Co., Inc.'s gasoline pipe line from the Wood River, Ill., refinery to Lima, Ohio. This 350-mile 8-in. line with a capacity exceeding 20,000 bbl. per day, employs a total of six pumping stations ranging from 975 to 200 installed motor horsepower per station. The new stations are of most modern design, using explosion-resisting motors coupled to 3,600-r.p.m. pumps.

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Temporary Installation of Geared Powers Used

PUMPING a relatively few wells on a lease during the early stages of development, or during the time when the properties are changing from the flowing to the pumping stages, presents a problem. The operator must decide whether he will use a centrally located geared power or individual units. In case the former method is selected, some means must be provided for pumping the wells during the transition.

On large operations a few pumping units are often used to handle the individual wells until the geared power can be installed. In other cases, the geared power may be installed and pump only a few wells for a considerable period during which other wells continue to flow or the drilling campaign is continued. While the lease is still in the development stage, it is hard to select the proper site for the geared power as further drilling may prove it has been mislocated and considerable adjustment will have to be made to balance the pumping set-up.

McDaniel & Beecherl, North Texas independent operators, have solved this problem by temporarily installing a geared power with the intention of moving it to its permanent location after enough wells have been drilled to indicate the proper site. At the present time they are pumping six wells with the geared power shown in the photograph and later they intend moving it to the center of the lease for the pumping of approximately 12 wells.

The installation is on the Wiesman lease, 2 miles east of the town of Muenster. Long 8 by 10-in. timbers were used for a foundation and the geared power and prime mover bolted to them; ordinarily a heavy concrete foundation is used or a concrete pit having a massive concrete base. The engine and geared power are covered normally with the exception of the top eccentric but in some cases a building is erected over the entire arrangement with the pull rods operating through the walls of the building.

The six wells being pumped by the above power are 720 ft. deep and are equipped with 2-in. tubing and ⅝-in. sucker rods. In addition, the power drives a single-cylinder pump which is used for transferring oil from the lease through a 2-in. line having a pressure of 600 lb. per sq. in. At the time the photo was taken only four wells were being pumped.

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Pipe-Line Building

(Continued from Page 36)

in the ditch. One view of the work is shown in an accompanying illustration. This shows the tractor preparatory to placing the pipe on skids for the pipe gang, a short distance behind, which aligns and tack-welds in the initial steps of welding the line according to the stove-piping method. Some of the angle dozers were equipped with slack layers, also shown in illustrations, which were fabricated by the Williams Brothers organization.

In the course of constructing this pipe line, Williams Brothers built two highways as permanent roads to be used by the company in connection with maintaining the line during operation. These roads were 35 ft. in width; one of these roads is 12 miles and the other is 14 miles in length. The 12-mile road was built out on the sides of a canyon; work was pushed night and day with three 8-hour shifts working under floodlights using four R.D. 8 angle dozers and a rooter for a period of 3 weeks. Work on the 14-mile road was conducted in the same manner with two R.D. 8 angle dozers.

Conditions encountered in the Fort Laramie, Wyo., section at the eastern end of the line presented the problems found in rough mountainous country. The ditch for the last 20 miles was dug through loose and solid rock. Loose rock was dug by a rooter and ditching machines. Three and a half miles of solid rock was blasted and subsequently removed by the trench hoe. Numerous side bends, overbends and sags were required in traversing this mountainous terrain; the ditch was widened to allow plenty of slack for expansion and contraction. Average width of ditch was 24 in. at the bottom of the trench; average depth was 26 in. In the lower parts of the Fort Laramie section irrigation canals were spanned; highway and railway crossings were bored without difficulty; North Platte River crossing was dredged with a drag line to a depth of approximately 3 ft. Considering the roughness of the country, ditching was accomplished in exceptionally good time. Welding and laying gangs followed closely.

BOOKS

*LUBRICANTS AND LUBRICATION. By James I. Clower. 464 pp. New York: McGraw-Hill Book Co. $5.**

The author devotes the first 10 chapters to the fundamentals of lubricants and lubrication, in a clear, understandable treatment that should enable the student to analyze the lubrication requirements of most equipment. The following six chapters apply the basic principles to the various machines and make specific recommendations for the analysis of equipment.

*This book may be purchased through the Book Department of The Oil and Gas Journal at the stated price, express prepaid. Check or money order should accompany all orders; otherwise the order will be sent express c.o.d.

QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph. D., Technical Editor

Naphthenic Oils Hold Soaps in Cup Greases and Bleed Little

Why do naphthenic oils hold soaps in solution better than paraffin stocks? Is it true that the naphthenic types of oils are less apt to bleed when made in cup greases than the other oils?—W. D. H.

Lubricating oils are mixtures of naphthenic, aliphatic, and aromatic hydrocarbons, and it is the proportions of each of these which influence the properties of greases. It has been found that some groups of atoms, sometimes designated polar molecules, possess the power to attract and combine with other substances and groups. This is thought to be due to the presence of unsatisfied bonds in the molecule or possibly one or more valences that are weak. Such substances are quite active chemically and readily unite with other compounds and also permit single elements and groups to enter into their structure.

Oils that are strictly paraffinic contain no unsatisfied, unsaturated bonds, whereas the naphthenic oils may contain weak-bonded molecules and unsaturated compounds. They frequently are acidic and are often accompanied by organic acids, so combine with alkalis to form soaps. The paraffin oils do not contain acids and have no tendency to form acids through oxidation, consequently have no affinity to unite with an alkali to produce a soap and no power to hold soaps in solution.

Grease makers recognized the principle that oils of the naphthenic type are less liable to bleed when made into cup greases than other oils, the reason being due to their chemical composition as explained above. When blending soaps with oils to make greases, there may be a slight excess of alkali, which would unite with the organic acids and naphthenes to produce salts and naphthenic soaps. Such conditions would tend to overcome bleeding when the oil was not present in great excess.

Voltol Process for Making High-Viscosity Lubricating Oil

What are the essential principles of the Voltol process for the manufacture of lubricating oil? What sort of apparatus is utilized in the operations?—W. G. B.

The object of the Voltol process is to increase viscosity by subjecting low-viscosity oils to a glow discharge of relatively high-frequency electricity; producing oils with properties similar to the high-viscosity blends of some mineral oils and castor oil. It is explained that the electrification of certain compounds in the oil is accomplished by means of the silent discharge of a high-tension current passing between electrodes surrounded by and in direct contact with the oil under treatment. This action is not to be confused with the ordinary electrolysis as illustrated in the separation of water into oxygen and hydrogen. It is thought that in the Voltol operation there is a division of the original molecules and a union of the parts to form new compounds; possibly polymerization takes place. Viscosity appears to be the only property affected by the treatment. A description of the process, including a list of German patents, by Elbert C. Isom appeared in The Oil and Gas Journal in 1925. The abstract here is from this source.

Oils to be Voltolized are first reduced to a good condition with respect to flash, fire and pour points. They must be free from wax, asphaltic matter or any oxidizable substance. American 500 red oil of 54-56 Saybolt Universal viscosity at 210° F. is an ideal charging stock. This is raised to 450 viscosity by the process and does not go off color or give other evidence of oxidization at high temperature. The time required is 48 to 50 hours. The normal charge for the German plant operation was a mixture of vegetable, fish or animal oil with mineral oil, which produces normal Voltol having a viscosity of 1,500 Saybolt Universal at 212° F.

The Voltol process is carried out at Potschapple, Germany, in a closed horizontal cylindrical steel vessel of 7,500 gal. capacity, under a reduced pressure of 24-26 in. of Hg. No hydrogen or other gas is introduced into the treating vessel. The oil is held, however, at 176° F, at which temperature and under such a high vacuum, even heavy oils will give off vapor. The Voltolizing is, therefore, doubtless accomplished in a rarefied atmosphere of oil vapors.

There are four treating vessels or containers in operation at Potschapple and space is provided for the addition of two more. They are equipped with large rectangular manheads on the top to permit the removal of the electrode elements by means of a small traveling crane. Four elements are employed in each vessel arranged on a rotating shaft driven, through an oil-sealed stuffing box, by a 220 electric motor. The electrode elements are made up of aluminum plates about 32 in. square and 1/25 in. in thickness, separated from each other by glazed fiberboard insulators about twice as thick as the plate, and slightly larger in order to prevent the high-tension current from arcing around the edges. Small wooden blocks serve to support the aluminum plates and to keep them properly spaced from the fiber insulators. The distance between aluminum plates is about two-fifths of an inch. The total working surface of the electrodes in each Voltol apparatus is 8,050 sq. ft., about 2,000 sq. ft. per electrode.

The capacity of each converter is approximately 8,000 gal., although in actual operation but 2,000 gal. are charged. The vessel is thus filled only about one-fourth full, it being impossible for the glow discharge to take place if the electrodes are immersed, due to the dielectric strength of the oil. A bucket arrangement or scoop is attached to the electrode carrier by means of which the oil is picked up and poured between the plates of the electrodes during the discharge and thus subjected to the action of the high-tension electric current. The vessels are provided with a steam coil in the oil to secure the desired operating temperature of 176° F. and through which cooling water is run to prevent the temperature from going any higher due to heat generated by the glow discharge.

The time required for the operation varies with the kind of oil treated. Running the mixture of fatty and mineral oil known as normal Voltol, each converter can produce about 900 gal. in from 2 to 3 days. The four units together handle 3,600 to 4,000 gal. in that length of time.

The only apparent drawback to the Voltol process lies in the electric power costs and the equipment necessary in proportion to the volume of oil treated, this placing a heavy overhead charge on the operation of the plant.

The present (1925) output of the Potschapple works, without the two new Voltolizers, is about 28,000 U. S. bbl. per year.

References: E. C. Isom, Increasing the Viscosity of Lubricants—Voltol Process. The Oil and Gas Journal, August 20, 1925, p. 156.
Heitmann, Bericht uber die Besichigung der Fabrik der Deutschen Elektrion-Ol-Gesellschaft m.b.H. in Potschappie durch den Dresdener Elektrotechnischen Verein.
Dr. H. Grossman, Aug. Osterr, Chemiker W. Tech. Zeit, 1927.

Physical and Chemical Laws and Principles Used in the Petroleum Industry

CATALYTIC ACTION

There are numerous substances which have the power to cause a chemical reaction to start, or to accelerate the speed with which a chemical change proceeds to completion, by its mere presence. Any material of this type, which may be recovered unaltered in quality and quantity at the end of the reaction, is called a catalyst or catalytic agent.

One of the best known examples of catalysis, used in the petroleum industry, is the Friedel and Crafts reaction in which aluminum chloride is the catalyst. This is the basis of the McAfee process for producing gasoline from heavier fractions of petroleum.

Action of High Sulfur Additions on Quality of Asphalt

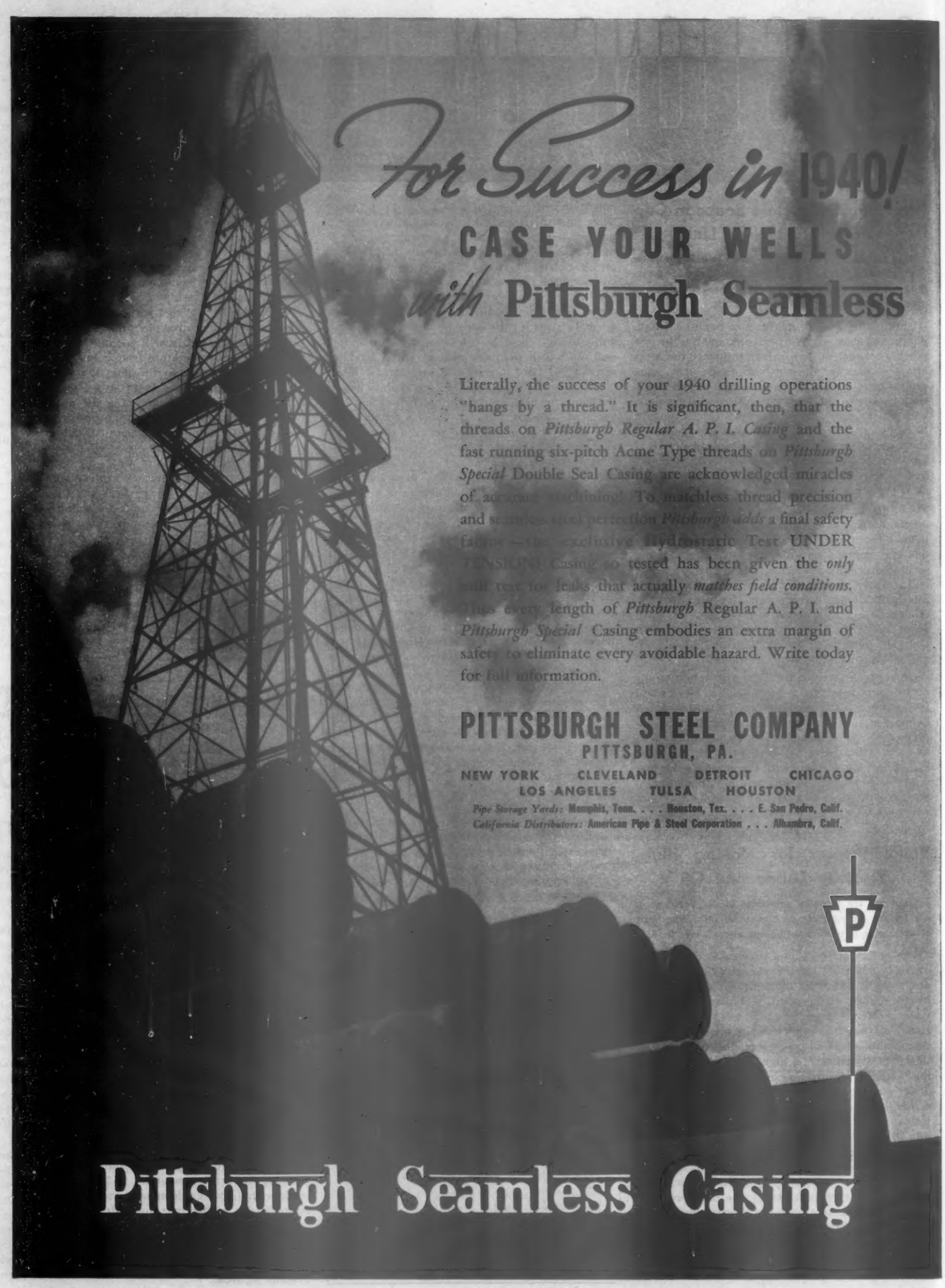
What is the action of large quantities of sulfur that may be combined when manufacturing asphalt?—C. C. E.

Large quantities of sulfur may be added when making asphalts, especially if the mixture is completed at high temperatures. However, asphalts of this type do not weather well and tend to crack in service.

Investigations of the influence of temperature and percentages of sulfur used in the preparation of such mixtures have been made by Bencowitz and Boe. They found that relatively low temperatures, not above 300° F., for the mixing favored the formation of a better product. When testing 17 asphalt mixtures of this sort, these experts reported the formation of 10 "stable mixtures" containing 40 per cent sulfur and that all of them combined with 25 per cent sulfur. The meaning of "stable" appears to refer to mechanical condition, for none of these asphalts would pass the Oliensis test and most of the sulfur could be extracted with organic solvents. Softening point of the sulfur mixtures did not increase like that of the pure asphalts. Most of the improvements indicated by the sulfur additions appeared to be temporary.

These investigators concluded that a higher maximum stability at 140° F. could be obtained with aggregate mixtures containing sulfur, without increasing the brittleness at 25° to 39° F. Mixtures made with a poor grade of sand in the presence of sulfur had a higher maximum stability than the same asphalt mixtures made with better sands without the sulfur.

Reference: I. Bencowitz and E. S. Boe, Effect of Sulfur Upon Some of the Properties of Asphalts, A.S.T.M. Preprint 95, 1938.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FIELD OPERATIONS

Summarizing the Week's Developments

KANSAS—A chat pool was opened in McPherson County, 2½ miles north of the Bornholdt pool, and is expected to prove an extension of that area. The Zenith-Misener field in Stafford County was extended ¼ mile northward, and an outpost ½ mile west of the field gave promise of proving Viola lime productive. The Wolf pool in Barton County and Stoltenberg pool in Ellsworth County were extended.

OKLAHOMA—The Byers pool discovery well in McClain County was completed, and two new tests in the area were reported. A Wilcox-sand discovery well in the Broyles pool, Payne County, was completed.

NEBRASKA—The Falls City discovery well in Richardson County was reported flowing again after having been shut down since December 8, when a clogged hole forced suspension of a pumping test. The hole has been reconditioned and casing cemented to shut off water. An auction sale of Indian lands in Richardson County was scheduled for Horton, Kan., Jan. 3.

NEW MEXICO—A pool was opened by N. H. Wills in Eddy County, northeast of the Getty pool and an oil well and gas well were added to the recently opened High Lonesome pool in the same county.

MISSISSIPPI—A 560-bbl. completion and a well in the pay were reported from the Tinsley field in Yazoo County. Several wildcat dry holes were also recorded in the state.

MICHIGAN—The Redding pool in Clare County had the best new well of the week in Michigan. It started at 2,976 bbl. a day. Twenty oil wells were completed in the state.

ARKANSAS—The Big Creek pool in Columbia County opened by Standard Oil Co. of Louisiana is the seventh Smackover-lime pool in the state. It produces gas condensate. Discovery well started at 168 bbl. of condensate and 4,100,000 cu. ft. of gas.

TEXAS: Gulf Coast—Production tests at outpost wells were being made in several counties. Dry holes were reported in the Juliff area in Brazoria County and 1 mile northeast of the Cedar Point field, offshore from Chambers County.

North and East Texas—A pool was opened in Montague County and another in Clay County. Shell Oil Co., Inc., will deepen its Glen Rose test in Houston County, which has reached the 9,800-ft. contract depth.

West and Central Texas—An Ordovician wildcat in Pecos County southwest of the Apco Ordovician pool is being tested in lime, total depth 4,446 ft. Wildcats seeking to join the North Cowden, Foster and Harper pools were also undergoing tests at critical stages.

Southwest Texas—Encouraging reports from scattered wildcats and testing of new sands in proven fields were the high lights of the week.

Completions in All Fields

(Week Ended December 30, 1939)

	Oil	Gas	Dry	Total	1940 total comp. to date*	1939 total comp. to date
N. Y., Pa., and W. Va.	40	19	7	66	66	64
Ohio	8	13	8	29	29	18
Indiana	7	0	5	12	12	0
Kentucky	2	0	4	6	6	3
Illinois	49	0	5	54	54	84
Michigan	20	0	16	36	36	8
Kansas	23	1	5	29	29	16
Oklahoma	21	3	14	38	38	25
Texas:						
North Central Texas	50	0	15	65	65	18
West Texas	38	0	4	42	42	33
Texas Panhandle	10	1	0	11	11	7
East Texas	3	0	1	4	4	16
East Central Texas	1	1	5	7	7	4
East Texas Border	1	0	0	1	1	0
Gulf Coast Texas	24	0	5	29	29	21
Southwest Texas	32	3	22	57	57	30
Total Texas	159	5	52	216	216	129
North Louisiana	2	0	0	2	2	3
Gulf Coast Louisiana	15	0	6	21	21	5
Total Louisiana	17	0	6	23	23	6
Arkansas	4	1	0	5	5	3
Montana	2	0	2	4	4	2
Wyoming	4	0	0	4	4	1
Colorado	6	1	3	10	10	9
Utah	0	0	0	0	0	0
California	19	0	2	21	21	16
Total United States	381	43	129	553	553	386
Total previous week	414	44	113	570		
Week ending Dec. 31, 1938	295	25	66	386		

*Fiscal year began December 25, 1939.

Outstanding Fields—Highlights

(Week Ended December 30, 1939)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
K.M.A.	23	49	13	11,204	1,226	26,015
Wasson-Bennett	20	76	16	14,673	574	23,137
Ector County	11	78	7	5,721	1,972	48,989
Pecos County	6	23	3	572	1,221	32,196
Jones County	4	18	4	506	598	6,792
East Texas	5	18	3	162	26,150	394,379
OKLAHOMA						
St. Louis	5	31	3	1,080	916	35,000
Cement	4	19	2	1,488	280	6,050
KANSAS						
Barton County	2	22	6	1,206	516	18,615
Ellis County	3	18	2	855	468	11,385
Rice County	6	27	4	1,507	1,416	30,865
Russell County	8	28	2	1,039	1,385	29,910
NEW MEXICO						
Eddy County	10	71	2	293	482	13,490
Lea County	13	59	4	612	2,334	96,110
LA-ARK-TEX						
Magnolia, Ark.	1	6	1	865	82	20,725
Cotton Valley, La., (deep)	1	6	0	0	148	13,200
MICHIGAN						
Freeman-Redding	1	10	2	3,716	132	15,836
Kent County	6	47	7	995	247	16,189
CALIFORNIA						
Montebello	4	25	3	1,329	331	26,150
ILLINOIS						
Salem City	7	83	23	18,495	1,522	181,275
Louden	4	39	4	935	1,267	73,507
Other basin fields	47	229	32	6,565	1,989	68,815
Old fields						8,975

NOTE—Details of oil completions in West Texas counties and in Illinois fields listed, not available on account of holidays. Information given on oil completions in the area as named is for December 23.

Rocky Mountain Area

By
T. R. INGRAM

Pool Opened in Eddy County Northeast of Old Getty Field

DENVER, Colo., Jan. 2.—End-of-the-year completions in the northern Rocky Mountain area resulted in an average well for the Yale Oil Corp. in its No. 2 Jones, in the Garland field, Wyoming, which made 25 bbl. an hour from the Madison lime. Ohio Oil Co.'s No. 1 University, at Rock River, pumped 24 bbl. per day from the Dakota sand. Continental Oil Co.'s No. 6-A Dielman, in Lance Creek, flowed 1,024 bbl. the first 24 hours from the Leo sand. Texas Co.'s No. 2-E, in La Barge, made 60 bbl. per day initially on the pump. Glacier Production Co.'s No. 2 Rigney, at the north end of Cut Bank, in Montana, was estimated at 80,000,000 cu. ft. of gas from the Moulton and Sunburst sands, and did not go into the Cut Bank sand. Texas Co.'s No. 3 Government, an outpost well at the south end of Cut Bank was plugged and abandoned, and the same company's No. 3 Hessler is an average well. Kevin-Sunburst had a good completion in Dr. Boris A. S. Arnow's No. 3 Ellingson, estimated at 200 bbl. per day or better without acidizing. Prevol & Shay's No. 4 Government, was abandoned.

NEW MEXICO

Northeast of the Getty pool, in Eddy County, New Mexico, N. H. Wills' No. 1 Keys, 2,310 ft. from the north and west lines of Section 15-20-30, was completed for 77 bbl. of oil in 11 hours, natural flow, from pay drilled from 1,586-87 ft. The well opens a new producing area for the county.

Second producer for the High Lonesome pool of Eddy County was J. Silas Pittman's No. 1 State, east offset to the discovery well, made 55 bbl. of oil in 4 hours on a pumping gage. The new producer is located 330 ft. from the south C SW SW SW Section 16-16-29, and found pay from 1,810 to 1,836 ft., total depth 1,845 ft. in anhydrite. Third producer for the High Lonesome area, a gas well, was also gaged. It was Powell & Matthews' No. 1 Leonard-Levers, approximately 2½ miles south of the discovery well and its offset. The producer made 4,300,000 cu. ft. of gas daily through casing from 2,235-65 ft., total depth. No. oil was found in the horizon of the two wells farther north.

Two closely watched wildcats were abandoned as failures during the week. Approximately 3 miles east of the Langlie pool in extreme southeastern Lea County, Leonard Oil Co. abandoned No. 2 Ginsberg, 1,980 ft. from the north and 660 ft. from the west lines of Section 7-25-38, at 3,975 ft. It encountered sulfur water with only slight shows of oil.

About 8 miles north of the Halfway pool and between that area and the Maljamar pool, Culbertson & Irwin, Inc. and Plains Production Co. shut down their No. 1 J. S. Lea for an electrical survey after uncovering water in sand from 3,140 to 3,150 ft., total depth. Location is in C NE NE Section 8-19-32.

In Chaves County, Comanche Drilling Co.'s No. 3 Sloop & Purcell, wildcat in Section 15-11-26, was abandoned at 1,386 ft. in lime.

Eddy County

Addison's No. 1 Sullivan, 660 ft. from N and E lines, Sec. 29-18-31. C.O. 3,573 ft.
Kersey & Co.'s No. 1 Creek, 330 ft. from N and 1,650 ft. from W lines, Sec. 23-18-30. Prep. cmt. csg. oil sand 3,263-80 ft. Prep. comp. est. 300 B.O.P.D.
Knox & Brewer's No. 1 Fred Hess, 330 ft. from N and W lines, Sec. 21-16-29. C.&P.
Powell & Mathew's No. 1 Levers, 1,980 ft. from S and W lines, Sec. 33-18-29. Made 4,300,000 cu. ft. gas day. 2,235-65 ft.
Everts' No. 1 Greer, SE cor. Sec. 31-16-31. Drlg. 3,412 ft.
L. R. Manning's No. 1 Patton-McClay, 330 ft. from N and 1,650 ft. from E lines, Sec. 21-18-30. Topped oil sd. at 3,009 ft.; drlg. ahead toward regular pay zone. Drlg. 3,155 ft.
G. A. Grober's No. 1 Wright, 1,980 ft. from N and W lines, Sec. 25-18-29. Tstg. S.O.&G. 1,382 ft.; est. 10 B.O.P.D.; S.I. 1,711 ft.
McClure & Swift's No. 1 State, 660 ft. from N and 1,980 ft. from E lines, Sec. 20-19-20. S.D.O. 2,215 ft.
Mac T. Anderson's No. 1 L. J. Root, 660 ft. from S and 660 ft. from W lines, Sec. 27-9-30. W.O.C. 2,290 ft.
G. R. Burke's No. 1 State, NE NE NW Sec. 36-16-24. C.O. 2,300 ft.
Artesia Drlg. Co.'s No. 1 Hoffman, SE SE SE Sec. 14-17-24. Drlg. 712 ft.
J. R. Cones et al's No. 1 Saunders, SE SE NW Sec. 13-17-27. S.O. 505 ft.; S.D.O. 600 ft.
L. E. Elliott's No. 1 Elliott, SE SE SE Sec. 24-18-29. S.S.O. 3,255-75 ft.; S.D.O. 3,435 ft.
Franklin Pet. Corp.'s No. 1 Masteller, NW NW NE Sec. 7-18-30. S.D.O. 2,872 ft. H.F.W.
Franklin Pet. Corp.'s No. 1 Cappedge, NW SW NW Sec. 5-18-30. S.S.G. 3,118-23 ft.; S.D.O. 3,453 ft.
J. W. Elliott's No. 1 Cannon (O.W.D.D.), C SW SE Sec. 4-19-30. S.D.O. 3,421 ft. sul. wtr.
Trojan Oil Co.'s No. 1 Grant, SW SW NE Sec. 33-20s-25e. S.O. 1,530 ft.; S.D.R. 1,580 ft.
Dodson Drlg. Co.'s No. 1 State, 2,310 ft. from N and 330 ft. from E lines, Sec. 17-16-29, ½ mile N of Nolen's No. 1 lies discovery well. C.&P.
Pittman's No. 1 State, 330 ft. from SW cor. Sec. 17-16-29, east offset to Nolen pool opener. Made 55 B.O. in 4 hrs. 1,810-36 ft.
Dodson Drlg. Co.'s No. 1 A. H. McElreath, 330 ft. from S and W lines, Sec. 3-16-29, 2½ miles NE of Nolen pool opener. S.D.R. 2,370 ft.; est. 175,000 cu. ft. gas.
Anderson's No. 1 Hess, 330 ft. S and W lines, Sec. 10-16-29. Spdr on ground.
Anderson's No. 1 Neeson, 330 ft. from W and 2,310 ft. from N lines, Sec. 4-16-30. Spd. and S.D.
C. B. Buck's No. 1 State, 330 ft from S and 4,290 ft. from E lines, Sec. 31-16-29. S.D.O. 1,645 ft.
Culbertson & Irwin's No. 1 Welsh, 660 ft. from N and W lines, Sec. 19-20-31. Drlg. 2,204 ft.
Dave Elder's No. 1 Hess, 1,650 ft. from N and 330 ft. from W lines, Sec. 21-16-29. Drlg. 2,004 ft.
A. E. Frazier's No. 1 H. E. Yates, 330 ft. from N and 1,650 from E lines, Sec. 6-20-27. Drlg. 600 ft.
Frederick's No. 1 Reed, 1,980 ft. from S and W lines, Sec. 28-24-38 (O.W.D.D.). C.O.; T.D. 2,770 ft.
Harvey et al's No. 1 Kistler, 330 ft. from S and W lines, Sec. 9-18-30. Drlg. 2,998 ft.; bailing 3 B.O.P.D.
Jack Harris' No. 1 Josey, 370 ft. from S and 2,310 ft. from W lines, Sec. 20-20-23. R.U. spdr.
F. E. Miller's No. 1 Young, 1,650 ft. from N and W lines, Sec. 23-16-29. S.D.R. 225 ft.
Sam Montgomery's No. 1 Kaltenback, 330 ft. from N and W lines, Sec. 24-16-27. Drlg. 305 ft.
Sam Weiner's No. 1 Hess, 330 ft. from S and E lines, Sec. 9-16-29. Drlg. 1,605 ft.
Thomas & Bowers' No. 1 H. W. Etz, 2,310 ft. from N and 330 ft from W lines, Sec. 13-16-30, loc.

Chaves County

H. E. Yates' No. 1 Johnson, 660 ft. from N and 1,980 ft. from W lines, Sec. 24-15-28. Drlg. 2,995 ft.
G. H. Cowden's No. 1 Brunson, 330 ft. N and W lines, Sec. 27-9s-30e. C.&P.
Caudill & French's No. 1-A Smith (O.W.D.D.), Sec. 1-4-29. S.D.R. 3,686 ft.
E. J. Fisher's No. 1 Hill, CSL S½ Sec. 8-15-25. S.D.O. 850 ft.
Tarkenton Bros.' No. 1 Peters, SE SE NW Sec. 33-11-25. S.S.O. 1,280-85 ft.; S.D.O. 1,324 ft.
Helmes & Martin's No. 1 Stephens, 660 ft. from N and 1,980 ft. from E line, Sec. 22-15-29. Drlg. 1,250 ft.
Sam Sanders' No. 1 T. H. fee, 2,310 ft. from N and W lines, Sec. 25-15-29. U.R. 8¼-in. csg.; T.D. 2,174 ft.; H.F.W.
T. S. Stanfield's No. 1 Bogle, 330 ft. N line and 2,310 ft. E line, Sec. 27-13-25. Location.

Dona Ana County

Picacho O. & G. Co.'s No. 12 Armstrong, Sec. 15-23s-1w, W.O. csg. 2,620 ft.
Slack & Mahres' No. 1 Simmons, Sec. 35-22s-5e. Tstg. Drill pipe 2,785 ft.

Luna County

O. D. Berry's No. Berry, SE SE SW Sec. 33-22s-10w. S.D.O. 1,000 ft.

Lea County

Argo Oil Co.'s No. 1 Texas Co.-Humphreys, 2,310 ft. from S and 330 ft. from E lines, Sec. 17-20-32. S.D.O. sul. wtr., 2,692 ft.
Culbertson & Irwin's No. 1 Lankford, 660 ft. from N and 1,980 ft. from W lines, Sec. 25-23-36. Gas from 2,955-3,007 ft. Increased to 75,000,000 cu. ft. day at 3,030 ft., drlg. 3,368 ft.
Westlea Oil Co.'s No. 1-A State, (formerly Frank Farley's), Sec. 16-20-32. Discovery well for Halfway pool. S.I. storage; pay section 2,692-31 ft.; est. 1,000 B.O.P.D.
Barefield & Brooks' No. 1 Walker, 1,980 ft. from N and 660 ft. from E lines, Sec. 5-18-32. C.O. 3,660 ft.; flwd. by heads from sat. 3,685-3,700 ft.; S.I., swbd. 80 B.O. P.D.; tstg. 3,700 ft.; est. 50 B.O.P.D.
Leonard Oil Co.'s No. 1 Ginsberg, 1,980 ft. from N and 660 ft. from W lines, Sec. 7-25-38. Prep. abd. 3,975 ft.; sul. wtr.
J. D. Barefield's No. 1 Stroup, 1,980 ft. from N and E lines, Sec. 12-18-32. Drlg. 300 ft.
Culbertson & Irwin's No. 1 Lea, 660 ft. from N and E lines, Sec. 8-19-32. Rng. electrical survey; prep. to abd. 3,150 ft.
Argo Oil Corp.'s No. 1 Texas Co.-State, west offset to Westlea Oil Co. pool opener. S.I. storage; swbd. 100 B.O.P.D.; T.D. 2,657 ft.; putting on pump.
Westlea Oil Co.'s No. 1 Texas Co.-Cleveland, 2,310 ft. S of Westlea pool opener and 330 ft. from N and 1,980 ft. from W lines, Sec. 21-20s-32e. S.D.O. 2,672 ft., sul. wtr.

Otero County

Ernest's No. 1 Ernest, Sec. 20-25-7. S.D. 2,504 ft.
Otero Oil Co.'s No. 1 State, SE NW Sec. 5-22-10. S.D. 736 ft.

SOUTHEAST NEW MEXICO COMPLETIONS

Eddy County

In the Grayburg-Jackson area H. W. Berry's No. 5 Berry, Section 23-17-27, was plugged and abandoned at 595 ft. N. W. & B.'s No. 1-B Jackson, Section 24-17-30, flowed 216 bbl. in 4 hours through open tubing, after it was acidized in pay at 3,435-60 ft. Roel Oil Co.'s No. 4 Saunders, 990 ft. from south and 1,650 ft. from east lines of Section 13-17-27, was plugged and abandoned at 544 ft.

A new wildcat pool opener, N. H. Wills' No. 1 Keys, 2,310 ft. from the north and west lines of Section 15-20-30, northeast of the Getty pool, pumped 77 bbl. of oil in 11 hours, from pay at 1,586-87 ft., total depth.

Lea County

In the Hardy pool Gulf Oil Corp.'s No. 4-B Mattern, C SE SE SE Section 30-21-37, flowed 149 bbl. naturally, in 24 hours from pay drilled at 3,730-3,800 ft. Two States Drilling Co.'s No. 1 Marshall, Section 27-21-37, pumped 40 bbl. in 10 hours from pay drilled at 3,665-3,758 ft.

In the Maljamar pool Maljamar's No. 3-B William Mitchell, Section 20-17-32, flowed 145 bbl. naturally, in 16 hours from pay drilled at 3,695-3,723 ft.

In the Skelly pool Skelly Oil Co.'s No. 6 H. O. Sims, Section 34-22-37, flowed 275 bbl. daily, naturally, from pay drilled at 3,575-3,645 ft.

In the Eaves pool Stanolind Oil & Gas Co.'s No. 2-C Farnsworth, Section 4-26-37, flowed 12,004,000 cu. ft. of gas daily from pay drilled at 2,511-2,900 ft.

In the Halfway pool Westlea Oil Co.'s No. 1 Moore, Section 21-20-32, plugged and abandoned at 2,387 ft.

NORTHWEST NEW MEXICO

San Juan County

Continental Oil Co.'s No. 101 Rattlesnake, SW SW SE Sec. 12-29n-19w. Loc.; (first report).
Continental Oil Co.'s No. 100 Rattlesnake, SE NW NE Sec. 2-29n-19w. Drlg. L. 6,741 ft.
Southern Union Prod. Co.'s No. 6 Govt., SE SE SE Sec. 14-28n-11w. Drlg. below 2,000 ft.

COLORADO

Custer County

Henry Donnelly's No. 1 Hodges, SE NE Sec. 26-21s-69w. S.D. 1,500 ft.

El Paso County

The test well being drilled by F. F. Hintze and others on the Ramah structure in their No. 1 State is reported to have topped the Foxhills at 123 ft. as compared with 135 ft. for the top of the same horizon in the Plymouth Oil Co.'s Brosky-Union Pacific, 6 miles to the northwest, which was drilled in 1938. The surface elevation of the Hintze well is 6,460 ft. as against 6,260 ft. for the Plymouth test, which puts the top of the Foxhills in the present test 212 ft. higher than in the well to the northwest.

F. F. Hintze et al's No. 1 State, CEL SE SE Sec. 16-11s-60w. Drlg. at 800 ft. and U.R. 13-in. at 775 ft.

Park County

South Park Oil Co.'s No. 1 Lemar, NE NE SE Sec. 34-11s-75w. Drlg. 7,142 ft.

Washington County

Thurman Oil Tr.'s No. 1 Ruby, NW NW SW Sec. 3-5s-52w. Drlg. blsh. gr. sh. 1,000 ft.

WYOMING

Big Horn County

Yale Oil Corp.'s No. 2 Jones, Lot 59 (CEL NE SE),

Section 29-56n-97w, was completed in the Madison lime at 4,320 ft., total depth, for 25 bbl. an hour. Top of the lime was at 4,250 ft. and the 7-in. pipe was cemented at 4,250 ft.

Carbon County

Ohio Oil Co.'s No. 1 University, SW SW SW Section 26-20n-78w, Rock River field, was recompleted at 3,476 ft. for 24 bbl. per day on the pump through the 5-in. casing perforated opposite the Dakota sand.

Albert Dev. Synd.'s No. 1 Boeke, SW NW Sec. 18-25n-79w. Drlg. 800 ft., in Tensleep.
Ohio Oil Co.'s No. 15 Harrison-Cooper, SE NE NW Sec. 2-19n-78w. T.D. 3,327 ft. in Sundance sd.; 6⅝-in. cmtd. at 3,280 ft.; W.O.C.

Fremont County

F. F. Hintze's No. 1 Jones, CWL NW NW Sec. 7-28n-92w. T.D. 600 ft.; fsg.; S.G. est. at 3,000,000 cu. ft. in Frontier at 485-545 ft.

Natrona County

Continental Oil Co.'s No. 1 McGrath, C NW SW Sec. 15-34n-78w. T.D. 7,331 ft.; bailed ¾ B.O. and ¾ B.W. per hr. after perf. with 50 additional holes at 5,628-85 ft.; S.D. for the winter.
General Pet. Corp.'s No. 1-21-G, NW NW NW Sec. 21-35n-77w. Cmtd. 11¾-in. at 643 ft.; drlg. plg.

Niobrara County

Lance Creek had one completion in the Continental Oil Co.'s No. 6-A Dielman, NW NE NE Section 7-35n-65w, an inside well, which flowed 43 bbl. an hour initially, and made 1,024 bbl. the first 24 hours through the tubing at 5,235 ft., total depth, from the Leo sand at 5,213-35 ft. It did not go into the Joss sand.

Minnelusa Oil Corp.'s No. 4 H. & M., NE NE SE Sec. 7-35n-65w. Rig; W.O. rotary.
Minnelusa Oil Corp.'s No. 1-B Joss, NE SW NW Sec. 7-35n-65w. Drlg. 2,613 ft.
Minnelusa Oil Corp.'s No. 7 Thompson, SE NW NE Sec. 7-35n-65w. T.D. 5,268 ft.; cd. sat. Leo sd. 5,356-68 ft.; cmtd. 7-in. at 5,212 ft.; drlg. plug.
A. B. Cobb's No. 5 Novick, NE NE NW Sec. 6-35n-65w. Drlg. 4,412 ft.
Ohio Oil Co.'s No. 13 Putnam, C NW NW Sec. 4-35n-65w. T.D. 5,478 ft.; cd. sat. sd. at 5,403-13 ft., 5,426-33 ft., and 5,445-55 ft.; cmtd. 7-in. at 5,373 ft.; prep. to perf. opp. Leo sd.
Ohio Oil Co.'s No. 4 Cash-1, NW NE SW Sec. 4-35n-65w. T.D. 4,294 ft.; fsg.
Ohio Oil Co.'s No. 6 Rohiff, SE NW NE Sec. 32-36n-65w. Loc.; W.O. equip.
Continental Oil Co.'s No. 5 Apex-O.P.C.-2, NW NW SE Sec. 34-36n-65w. Drlg. 3,542 ft.
Continental Oil Co.'s No. 17 Tom Bell, SE SE NE Sec. 33-36n-65w. Drlg. 3,519 ft.
Continental Oil Co.'s No. 5-A Dielman, SE NW NW Sec. 8-35n-65w. Cd. sdy. L. to 5,525 ft. in Joss sd.; T. Leo 5,379 ft.; 7-in. at 5,365 ft.
Continental Oil Co.'s No. 6 Sam Joss, NW NW NE Sec. 6-35n-65w. Drlg. 5,078 ft.
Continental Oil Co.'s No. 4 Rodeo-4, SE NE NE Sec. 35-36n-65w. T.D. 3,708 ft.; drlg. on csg.
Argo Oil Co.'s No. 1 Ong, SE SE SW Sec. 31-36n-65w. Drlg. r.b. 4,652 ft.

Park County

Mule Creek Oil Co.'s No. 1, Lot 51, Sec. 9-46n-101w. Sulf. wtr. in Embar at 2,635 ft.; will D.D. to Tensleep.

Sublette County

Texas Co.'s No. 2-E, SW NW Section 27-27n-113w, La Barge field, was completed at 935 ft. and is pumping 60 bbl. per day.

Marvel Oil Co.'s No. 1, NE NE SE Sec. 28-27n-113w. Drlg. 1,003 ft.
North La Barge Oil Co.'s No. 1 Govt., SW NE SE Sec. 8-27n-113w. T.D. 1,275 ft.; W.O. pipe-line connection to complete.
North La Barge Oil Co.'s No. 2 Govt., CEL SE NE Sec. 28-27n-113w. Cg. below 952 ft.
Wyo. Pet. Corp.'s No. 1 Chas. Budd, C NE NE Sec. 10-29n-113w. T.D. 3,054 ft.; will P.B. and comp. as gas well.

MONTANA

Carbon County

Ohio Oil Co.'s No. 9 Souders, C NE SW Sec. 2-7s-21e. T.D. 5,511 ft.; pmpg. in attempt to exhaust wtr.
Minnelusa Oil Corp.-Henderson Prod. Co.'s No. 1-H-11-Elk-11, SE SE NW Sec. 35-9s-23e. T.D. 2,877 ft.; cmtd. 5½-in. on T. Dak. at 2,868 ft.; W.O.C.
R. C. Tarrant's No. 2 McKay, C SE NW Sec. 4-6s-18e. Drlg. 2,990 ft.

Choteau County

Security Pet. Corp.'s No. 1 Johnson, C NE NE Sec. 23-26n-3e. S.D. 2,091 ft. to fill in lease blk.

Glacier County

Glacier Production Co.'s No. 2 Higney, C SE SW Section 35-36n-6w, at the extreme north end of the Cut Bank field, which last week was reported unofficially to have blown in for 80,000,000 cu. ft. of gas, making it one of the largest gas wells ever completed in the state, has been shut in and may be completed without attempting to drill into the Cut Bank sand. It had the top of the Moulton sand at 2,905 ft. and at 2,914 ft. it blew in and gaged 31,000,000 cu. ft. The well then was killed and deepened to the top of the Cut Bank sand at 2,970 ft., where the 7-in. was cemented. The 8⅝-in. was cemented at 2,897 ft. The water had been bailed

(Continued on Page 69)

Average Wells Completed in Southwestern Indiana Field

By STAFF CORRESPONDENT

EVANSVILLE, Ind., Jan. 1.—Posey and Gibson county completions included some 100 to 150-bbl. wells in the past week, but the week passed with not much if any, increase in the field work.

In Posey County J. E. Crosbie, Inc.'s No. 2 Keck, NW SE NE Section 34-3s-14w, drilled to 2,810 ft., was plugged back to 2,808 ft. and shot with 40 qt. at 2,788-2,818 ft. It pumped 150 bbl. of oil the first 24 hours. Hollandsworth Brothers' No. 2 Keck, NE SE NE NW Section 34-3s-14w, was shot with 10 qt. at 2,784-2,800 ft. and made a 110-bbl. well. Harry Sandler and others' No. 1 Keck, NE cor. NW¼ Section 34-3s-14w, set 7-in. casing at 2,775 ft., total depth 2,801 ft. It pumped 107 bbl. the first day. Thomas Ryan and others' No. 1 Montgomery, NE NE NE Section 9-4s-12w, found the Waltersburg sand dry and was drilling at 2,180 ft.

In Gibson County H. & K. Drilling Co.'s No. 1 McCarthy, SW NE NW Section 13-2s-11w, was dry and abandoned at 1,827 ft. Cypress sand was topped at 1,818 ft. J. E. Amis and others' No. 1 Dunn, NW cor. NE¼ Section 19-3s-13w, was dry and abandoned in Waltersburg sand at total depth 2,145 ft. Joe Bander and others' No. 28 Cooper, SE cor. Section 13-3s-14w, was shot with 25 qt. at 2,517-23 ft. and pumped 144 bbl. in 24 hours. Same operators' No. 26 Cooper, SE NE NE Section 24-3s-14w, had casing perforated with 10 shots at 2,065-77 ft. and flowed 150 bbl. of oil the first 24 hours, but later the well was producing 75 per cent water. It looked like a failure. Hollandsworth and others' No. 3 Cooper, NW cor. NE SE NE Section 24-3s-14w, was a 100-bbl. pumper after a 20-qt. shot at 2,062-2,100 ft. Hollandsworth and others' No. 4 Cooper, NE cor. SE NE Section 24-3s-14w, was good for 110 bbl. on the pump after a 20-qt. shot at 2,073-2,110 ft. Shirley and others' No. 1 McRoberts, NE cor. SE NW NE Section 7-1s-9w, was dry and abandoned at 1,000 ft.

Continental Oil Co.'s No. 1 Blood, NW NW SW Section 13-3s-13w, in Posey County, had only a scum of oil down to 2,380 ft., and will be drilled to the McClosky lime.

In Knox County Horton & Wiggins' No. 1 State Life Insurance Co., SW SW NW Section 14-1s-12w, was dry and abandoned at 2,402 ft.

In Marion County C. E. Jefferson and others' No. 1 Indianapolis Water Co. in Section 15-16n-3e, which had a showing of oil reported several weeks ago, has never been tested because of pump trouble. Same operators' No. 1 Carter estate, SW cor. NE¼ Section 15-6n-3e, a northeast offset to the above well, had a rainbow showing in Trenton lime at 884½-900 ft. It was treated with 25 gal. acid and 25 gal. of water, and a showing of oil is said to have been developed.

In Spencer County Damron Brothers' No. 1 Smith, NW cor. NE SW NE Section 19-7s-6w, was dry and abandoned at 1,320 ft. Snell and others' No. 1 Bigger-staff, SW SW SE Section 6-7s-7w, had a showing of oil at 1,051-52 ft., total depth, and casing was being underreamed at 1,000 ft.

In Vanderburgh County Volkman and others' No. 1 Hildt, C E½ NE SW Section 18-7s-11w was shut down for orders at 1,932 ft.

OHIO FIELDS

XENIA, Ohio, Jan. 1.—In southwestern Ohio, the Greene County test has been drilled through the Trenton to the Blue Lick water. Sun Oil Co.'s No. 1 E. M. Marshall topped the first Green shale at 1,586 ft. A small amount of salt water was showing at 1,666-72 ft., a second streak of Green shale was found at 1,678-83 ft., with the Blue Lick water coming in at 1,698 ft., abandoned at 1,725 ft. The test is in Caesars Creek Township, 7 miles southeast of Xenia and 2 miles west of Route No. 68.

In the Central Ohio area Perkins and others, in Howard Township, Knox County, is preparing to case off water struck at 4,400 ft.

In Medina County, Spencer Township, McCrea and others are fishing at 5,050 ft. Twenty-three completions were reported in the Ohio fields covered by this report, 13 gas wells, 8 dry holes, and 2 oil wells.

In Ashland County, Lake Township, Stewart Co.'s No. 5 N. A. Steward, Section 21, is a gas well in the Berea, gaging 400,000 cu. ft. at 773 ft.

In Athens County, Rome Township, F. Gifford's No. 2 John E. Parmiter, Section 30, is a 2-bbl. pumper in the first Cow Run sand at 443 ft. In Section 3 Barrows Oil & Gas Co.'s No. 1 I. V. Crippen, gaged 330,000 cu. ft. of gas in the Injun at 1,420-22 ft. In Lodi Township three gas wells were completed, Ross & Weimer's No. 8 G. P. Ackley, Section 19, had an open flow of 230,000 cu. ft.; first Berea at 1,533-39 ft. A. D. Townsend's No. 2 M. H. Loeffler, Section 6, had an open flow of 400,000 cu. ft.; first Berea at at 1,629-30 ft. Ohio Fuel Gas Co.'s No. 1 Marie Burton, Section 18, had an open flow of 85,000 cu. ft.; second Berea at 1,685-95 ft.

In Mayfield Village, Cuyahoga County, Benedum-Trees, Inc., made two completions, No. 1 Olive Parker, Lot 35, Tract 1, made 25 bbl. of oil and 500,000 cu. ft. of gas, open flow, from the Newberg sand at 2,795-2,822 ft.; No. 1 Arthur Dawson, Lot 20, Tract 2, open flow, 1,000,000 cu. ft., Newberg at 2,795-2,822 ft.; both wells treated with acid.

Coshocton County, Jefferson Township, Warsaw Oil & Gas Co.'s No. 1 Jacob Gamesfelder, Section 9, was dry in the Clinton sand, total depth 3,347 ft.

Lawrence County, Union Township, Star Gas Co. completed two gas wells in the Ohio shales, each good for 200,000 cu. ft., open flow. No. 1 Buford Pratt, Section 5, gas at 2,395 ft.; No. 1 Thomas J. Templeton, Section 9, total depth 2,696 ft.

Licking County, Mary Ann Township, Settles Oil Co.'s No. 2 James Shannon heirs, fourth quarter, made 7 bbl. of oil first 24 hours after shot; Bereat at 673-80 ft.

Meigs County, Letart Township, Proffit Co.'s No. 3 Victoria Norris, Section 5, dry at 797 ft.

Monroe County, Sunsbury Township, H. B. Walker Co.'s No. 2 J. W. Pittman, Section 27, gaged 830,000 cu. ft. of gas in the Berea at 2,247-53 ft.

Muskingum County, Brush Creek Township, Gas Pro-

(Continued on Page 69)

EASTERN KENTUCKY

ASHLAND, Ky., Jan. 1.—A holiday shutdown hit the eastern Kentucky area this week and operations in the oil and gas fields were at a lower than usual level. No completions were reported.

The Virginia Coal & Land Co. was reported drilling at a depth of 3,815 ft. in shale in its test 6 miles south of Coeburn, in Wise County, Virginia. This well will go 5,000 ft. or more. It is said to be located on the back side of the overthrust with the front side of the fault, in Kentucky, following the state line.

WESTERN KENTUCKY

OWENSBORO, Ky., Jan. 1.—A 200-bbl. well from McClosky lime in Daviess County and a Barlow-sand producer that pumped 14 bbl. in a 1-hour test were the best of the week's crop of completions in western Kentucky which included the above wells and four dry holes.

Breckinridge County, Glen Dean district: Morgan & Gill's No. 1 Thad Matthews, spudding in. H. J. Cooper and others' No. 9 Earl Moorman, abandoned location.

Butler County, Mount Zion School district: South Penn Oil Co.'s No. 1 A. Jenkins, dry hole at 488 ft.

Christian County, 7 miles northwest of Hopkinsville: Dr. W. L. Wood's No. 1 Wood, temporarily abandoned at 711 ft.

Daviess County, Utica district: Master Oil Co.'s No. 1 Roy Hansford, drilling deeper from Barlow sand to McClosky lime, old total depth 1,455 ft. C. E. Daugherty and others' No. 4 Howard & O'Flynn, rigging up. C. E. Daugherty and others' No. 6 J. A. Leet, Jett and Jones sand well, total depth 1,218 ft., shut down for title and shot. Stewart-Snyder & Sargeant's No. 3 Dr. A. A. Westerfield, 200 bbl. of oil and 40 bbl. of water from McClosky, total depth 1,746 ft. Handyville district: A. V. Smith and others' No. 2 R. Y. Cravens 50 acres, location. Cane Run School district: Mecca Oil Co.'s No.

(Continued on Next Page)

Eastern Field Report

By STAFF CORRESPONDENT

Oriskany Test on Chestnut Ridge Has Good Gas Show

PITTSBURGH, Pa., Jan. 1.—On Chestnut Ridge in Fayette County, the test of the New Penn Development Co., William E. Snee and others on the Piedmont Coal Co. lease in North Union Township, struck the first gas pay in the Onondaga lime at 6,731 ft. or 39 ft. below the cherty zone of that member. The gage was 442,000 cu. ft. a day which increased at 6,732 ft. to 525,000 cu. ft. a day.

This is a larger volume in the first pay than in the other wells drilled on the Summit and appears to have been reached at a shorter interval in the cherty zone. It is of special interest as the top of the cherty zone in this test is 4,514 ft. subsea compared with 4,281 ft. in No. 1 Summit Hotel (Heyn), and with 4,346 ft. in the J. H. Sorg test. It is noteworthy that gas extends that far down the closure. This anticline has a closure of 1,100 to 1,200 ft. extending from a distance northeast of the present wells southwest into West Virginia.

SOUTHEAST OHIO

In Athens County, Ohio, Carpenter & Glazier's No. 22 John Smith, Section 13, Ames Township, had first Cow Run sand at 352 ft. It produced 10 bbl. the first day after shot.

In Fairfield County, Gas Producing Co. of Ohio completed No. 3 C. L. Berry and others in Section 23, Walnut Township, in the Niagara lime at 1,990 ft. It has a small showing of oil and may make a small pumper.

In Licking County Ralston Oil Co. completed a well on the William Frampton heirs farm in Section 8, Fallsbury Township, in Clinton sand at 2,979 ft. After a shot, 20 bbl. were swabbed the first 18 hours.

In Medina County, Curtis & Eaken completed a test on the Blake Huffman farm, Tract 15, Lot 60, Chatham Township, in Berea grit at 592 ft. It produced 7 bbl. the first day after a shot. In Section 13, same township, the Marine Trust Co. completed No. A-5 W. H. Ripley at 460 ft. and it produced 10 bbl. the first day after shot in the Berea grit. These owners also completed several input wells for water flooding.

In Noble County Kennonsburg Oil & Gas Co. completed a test on the Eugene B. Ward farm, Section 2, Wayne Township, in Cow Run sand at 670 ft. It produced 25 bbl. the first day after a shot. In Section 29, Seneca Township, C. W. Rich and others completed a gas well on the H. Williams heirs in Berea grit at 1,538 ft. and it is a gas well gaging 70,000 cu. ft. a day with no showing of oil.

In Perry County, in the NW¼ Section 23, Bearfield Township, Atchinson & McVay completed a test on the Floyd Simon farm in the Berea sand at 1,170 ft. It produced 1½ bbl. the first day after shot and will make a small pumper.

SOUTHWEST PENNSYLVANIA

In Cowanshannock Township, Armstrong County, Peoples Natural Gas Co. completed a gasser on the France Harkelroad farm at 3,729 ft., Bradford sand. It gages 264,000 cu. ft. from 3,557-95 ft. In Boggs Township, same company completed a gas well on the McCullough heirs farm at 1,180 ft., Murraysville sand. It gages 85,000 cu. ft. a day. John Wray and others are drilling at 3,373 ft. in No. 3 William Mateer and at 453 ft. in No. 2 Samuel Yockey.

Clarion County

In Clarion County T. W. Phillips Gas & Oil Co. completed No. 2 T. C. Blair in Porter Township at 2,962 ft. with the Tiona sand at 2,370-2,432 ft. and a small volume of gas at 2,385-2,411 ft.

Greene-Fayette

In Greene County Natural Gas Co. of West Virginia completed a small gas well on the Robert Burns farm in Richhill Township at 3,161 ft. with the Gordon sand at 3,003 ft. and 29,000 cu. ft. of gas at 3,004 ft. It may not be tubed.

In this township, W. L. Walters and others have started drilling on the Cecil Clutter farm. In Richhill and Aleppo Townships, O. I. Dille and others are drilling at 300 ft. in a test on the Madison Hughes farm.

Deep Tests

In Maryland, New Penn Development Co., William E. Snee and others have reached 5,255 ft. in the test on the Humberson farm on the Accident dome in Garrett County. In Stewart Township on Laurel Ridge in Fayette County, Pennsylvania, these operators and E. G. Mueller are drilling at 2,726 ft. on the Gregg L. Neel farm. On Chestnut Ridge in Fayette County Wasson & Co. are shut down at 2,343 ft. in No. 2 J. H. Sorg in North Union Township.

WEST VIRGINIA

In Clay County, West Virginia, Virginian Gasoline & Oil Corp. completed No. 50 Swann, Goshorn & Brown in Henry district at 1,915 ft., the Injun sand, and it is good for 15 bbl. a day.

In Wetzel County Hope Natural Gas Co. completed No. 7913 on the Valentine Blatt farm in Proctor district at 2,840 ft., the Gordon sand, and it is good for 5 bbl. a day before shot.

In Pleasants County E. C. Wilson completed the test on the P. E. Cox farm in McKim district at 2,042 ft., the Injun sand, and it is showing for 1 bbl. a day along with 100,000 cu. ft. of gas before shot.

Gas Wells

In Braxton County Pittsburgh & West Virginia Gas Co. completed No. 7714 W. C. Barton in Birch district at 1,890 ft. with the Big Injun sand at 1,787-1,897 ft.; gas 1,804-18 ft.; gas 1,875-78 ft.; gas 1,887-90 ft. The total gage was 149,000 cu. ft. a day after a 40-qt. shot. In this district this company drilled a No. 7713 on the William Fisher farm to 2,465 ft. with the Big Injun sand at 2,335-2,425 ft.; Squaw sand 2,450-65 ft. It was dry.

In Cabell County W. C. Kingery and others completed a well on the Clarence Roberts farm in Guyandotte district at 3,107 ft. with Brown shale 2,658-3,092 ft. and a gage of 740,000 cu. ft. a day 55 minutes after the shot at 2,960-3,016 ft.

In McComas district, Cabell County, West Virginia Gas Corp. completed a gas well on the Jefferson Tripplet mineral lease at 3,535 ft. with Brown shale at 3,200-3,535 ft. and a gage of 160,000 cu. ft. a day after a shot. This company also completed a gas well on the J. T. Ross farm at 3,236 ft. with Brown shale at 2,614-3,236 ft.; and a gage of 106,000 cu. ft. a day after a shot.

In Gilmer County the Pittsburgh & West Virginia Gas Co. completed No. 7701 on the South Penn Oil Co. lease in Center district at 1,920 ft. with the Big lime at 1,839-1,910 ft.; Big Injun 1,910 ft.; gas gaging 550,000 cu. ft. a day before shot at 1,912-18 ft.

In Logan County South Penn Oil Co. completed No. 57 Yawkey-Freeman in Logan district at 2,931 ft. with the Berea sand at 2,906-28 ft. and a volume of 520,000 cu. ft. a day.

In Ritchie County W. R. Hays' test on the L. S. Eddy farm in Murphy district at 2,107 ft. is a gas well in Injun sand. After a 17-qt. shot at 1,998-2,004 ft. it gaged 65,000 cu. ft. a day. In Union district W. H. Mossor & Son drilled a test on the James Wright heirs farm to 2,510 ft. through the Berea slate and shells and it was dry. Here, the Burge Drilling Co. drilled a second test on the L. E. Warner farm to 2,456 ft., the same horizon, and it was dry. In this district W. A. Bickerstaff drilled a dry hole on the R. E. Britton farm through the Injun sand to 1,911 ft.

In Roane County Wolfcamp Oil & Gas Co. completed a gasser on the Coy Westfall farm in Harper district at 1,483 ft. with the Salt sand topped at 1,452 ft. It had a volume of 1,000,000 cu. ft. a day at 1,460 ft. before this shot.

In Wayne County H. L. Skidmore and others' well on the N. B. Morrison farm in Union district was finished at 3,782 ft. with the Brown shale at 3,110-3,780 ft. It gages 53,000 cu. ft. a day after the shot. In this district Industrial Gas Co. completed a well on the M. MacMasters farm at 2,880 ft. with the Brown shale at 2,425-2,880 ft. and a gage of 95,000 cu. ft. a day. It had been shot.

In Stonewall district, Wayne County, the Southern West Virginia Gas Corp. deepened No. 8 C. M. Fraley starting at 1,536 ft., the Berea sand was at 2,020-56 ft., Brown shale 2,695-3,033 ft., and 62,000 cu. ft. of gas a day after a shot.

In Wetzel County Hope Natural Gas Co.'s No. 7914 William Shafer in Proctor district at total depth 2,198 ft. with the Maxton sand at 2,135-96 ft. and gas at 2,178-90 ft. showed a gage of 954,000 cu. ft. of gas a day.

In Wirt County Glen W. Roberts drilled No. 1-61A on the W. C. McConaughey farm in Burning Springs district to 2,900 ft., through the Berea slate and shells, and it was dry and abandoned. Here, this operator drilled No. 1-51A on the same farm to 2,118 ft., Injun sand, and it was also dry.

In Wood County C. E. Love, on the V. F. Chichester farm in Williams district, drilled through Injun sand to 1,562 ft. and it was dry.

Oriskany Gas Field

No wells were completed in the Oriskany gas field in Kanawha County during the week. In Poca district Mullins Gas Co. is drilling at 2,350 ft. in the W. E. Fisher test; Alpha Gas Co. at 3,030 ft. in No. 2 J. W. Legg; West Virginia Gas Corp. at 4,640 ft. in the P. B. Garnes test; Brawley-Reid Gas Co. at 4,021 ft. in the J. F. Jordan test; United Carbon Co. at 1,540 ft. in the W. J. Bumgardner and others test, and spudding No. 2 Louisa E. Long; Columbian Carbon Co. at 4,964 ft. on the John Price land, at 3,860 ft. in the B. H. Richards test, at 4,187 ft. on the Walter Payne land and at 2,874 ft. in the W. S. Jones test; United Fuel Gas Co. at 4,361 ft. in No. 4861 C. C. Fisher and rigging up No. 4863 Mary E. Carney.

In Union district Godgrey L. Cabot, Inc., is down 4,499 ft. in No. 1 L. M. Lafoliette and 4,932 ft. in No. 1 Mansfield Jones; Cameron Producing Co. was drilling at 2,000 ft. in No. 1 J. W. Casdorph. In Louden district Columbian Carbon Co. is drilling at 4,805 ft. in No. 4 Campbells Creek Coal Co. In Elk district Linden Drilling Co. is down 1,300 ft. in No. 1 S. D. Robinson.

Western Kentucky

(Continued from preceding page)

1 Walter Jackson, drilling at 200 ft. Brown's Valley district: Ohio Oil Co.'s No. 1 Paul Sands, dry hole through McClosky lime, total depth 1,740 ft.

Hancock County, Saunders School district: W. J. Flesher and others' No. 2 Jane Saunders, drilled deeper from Jackson sand through 28 ft. of Barlow sand, pumped 14 bbl. in a 1-hour test after shot. Shut down for tankage.

Henderson County, Hebbardsville district: H. B. Cameron and others' No. 1 Sallie Barnes and heirs, rig on location.

Ohio County, Sunnydale district: H. C. Amos and others' No. 3 Ira Gray, dry hole at 250 ft. J. Traylor and others' No. 1 Lee Lewis, dry hole at 473 ft.

Oklahoma Operations

By DAL DALRYMPLE

Complete McClain Discovery; Wilcox Productive at Broyles

The annual holiday lull, coupled with the coldest weather of the season to date, is reflected in the lack of reports of Oklahoma field operations. A few items of interest came through, however, to prove that it takes more than a combination of Christmas and severe weather to cause a complete suspension of activity. These included the completion of a pool opener, discovery of a deep pay in an older field, another good producer in the Cement field of Caddo County and reports of some new wildcat activity.

Wildcat Completions

Patsy Oil Co.'s No. 1 James, NW NE NE Section 16-5-3e, wildcat that opened the Byers pool in southeastern McClain County—first pool in the county—was completed at total depth of 3,623 ft. It topped Viola lime at 3,490 ft., and 7-in. casing was set at 3,478 ft. When plug was drilled, it blew in, flowing 1,000 bbl. of oil in 22 hours, with ¼-in. choke on casing. Gravity of the oil was 37.6°. It had 340 lb. casing pressure. Gas gaged 1,000,000 cu. ft. No water was in evidence. It later flowed at the rate of 340 bbl. of oil in 8 hours, through choke. The oil is being trucked to pipe lines at Bebee.

Mulberry Oil Co.'s No. 9 Broyles, NW NW NE NW Section 26-18-4e, in the Broyles pool, Payne County, is listed as a wildcat because it uncovered a new producing horizon for the area, the Wilcox sand. Top of Wilcox sand was 3,820 ft., 7-in. casing was set at 3,782 ft., 2½-in. tubing at 3,828 ft., and the hole was bottomed at 3,833 ft. It flowed 155 bbl. of oil through tubing in 24 hours, with no water.

Delaney Oil Co.'s No. 1 Massey, SE NW SE Section 25-4-6, wildcat in Pontotoc County, had first Gilcrease sand at 1,610-50 ft., second Gilcrease sand at 1,675-1,703 ft. and was dry and abandoned at total depth 1,801 ft.

J. F. Smith and others' No. 1 Corbett, C SW NE Section 20-6-1e, old wildcat in Cleveland County, was plugged back from 6,760 ft. to 6,415 ft., with old 6-in. casing set at 6,320 ft. With 781 ft. of 9-in. pipe on top of old casing, operators cleaned out to 815 ft., were unable to get inside old pipe and the well was abandoned.

Magnolia Petroleum Co.'s No. 1 Warren, NE SW SE Section 35-6-8, Hughes County wildcat, had sand at 1,249 ft. and was dry and abandoned at 1,264 ft., total depth.

Same company's No. 1 Margay-Johnson, SW SW NE Section 29-25-8w, Grant County wildcat, drilled to total depth of 6,600 ft., plugged back to 6,520 ft., perforated at 6,415-38 ft., and in Mississippi lime at 5,842-60 ft., had nothing showing and was abandoned.

New Field Operations

Deep Rock Petroleum Corp. and others' No. 1 Cleer, SW SE SW Section 6-15-5, was location for a wildcat in the Haskell district of northwestern Muskogee County.

Patsy Oil Co. was rigging up rotary at No. 1 Caldwell, NE NW NE Section 16-5-3e, in the new Byers pool, McClain County.

J. F. Smith's No. 1 Moon, NE SW SE Section 32-8-4, was a location in the St. Louis district, Pottawatomie County.

In Seminole County Ches. Martin's No. 1-A Earles, NE SE NW Section 33-9-6, was drilling below 2,090 ft.; P. G. McIntyre's No. 5 Johnson, NE SW NE Section 10-10-8, was a cellar; R. W. Vierson's No. 1 Swan, NW SE NW Section 28-6-6, was a location.

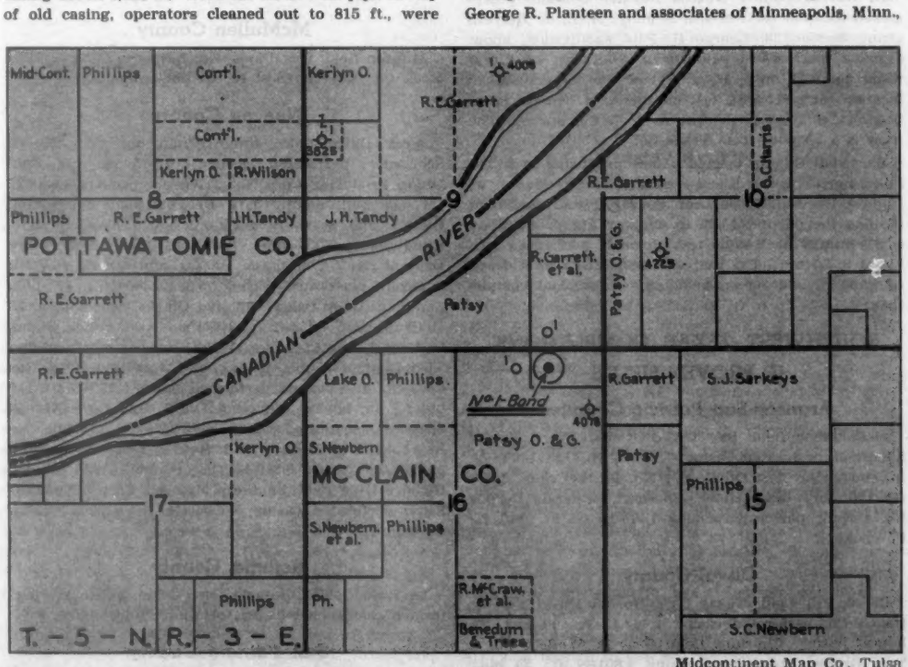
W. A. Delaney's No. 3-A Shipley, SE NW SW Section 21-5-8, Pontotoc County, was a location.

Summitt Drilling Co.'s No. 1 Thompson, SE SE SW NW Section 18-10-11, Okfuskee County, was a rig.

In Okmulgee County W. R. Staples had spudded at No. 2 Sharum, C SW SE Section 31-12-13; Thirteen Oil Co.'s No. 3-A Champion, NW SE NW Section 28-14-14, was a machine.

In Kiowa County

Material was being moved to the old Hagerling and others' No. 1 Bozeman, SE SE NE Section 14-5-18w, wildcat near Roosevelt in Kiowa County, preparatory to beginning a Wilcox-sand test. It was reported that George R. Planteen and associates of Minneapolis, Minn., had closed a deal with Fields & Nagle, Oklahoma City drilling contractors, to take over the old wildcat, which had been shut down since last August at 534 ft. Geology of the area recently was reworked by L. R. Trout of Fort Worth.



Midcontinent Map Co., Tulsa

The discovery well in the Byers pool, McClain County's first producing area, was completed at Patsy Oil Co.'s No. 1 James, NW NE NE Section 16-5-3, and work was due to start at offset locations

Estimated Daily Production

Estimated daily production for Oklahoma for the week ended December 30, and for the preceding week, was as follows:

	Barrels	
	Dec. 30	Dec. 23
Allen	6,125	6,100
Billings	6,375	6,350
Burbank	7,175	7,150
South Burbank	8,675	8,650
Balance Osage	18,500	18,250
Blackwell district	3,775	3,575
Bristow-Slick	6,350	6,325
Chandler	1,475	1,450
Crescent	2,425	2,375
Cromwell	2,875	2,875
Cushing-Shamrock	9,650	9,650
Duncan	3,725	3,725
Edmond	4,600	4,575
Fish	3,775	3,775
Fitts	20,150	21,300
Jesse	2,275	2,275
Graham-Fox	2,250	2,275
Gray	750	750
Healdton	9,075	9,025
Hewitt	3,875	3,875
Keokuk	3,075	3,000
Konawa	1,225	1,150
Lucien	8,475	8,425
Moore	2,550	2,550
Oklahoma City	92,200	109,150
Olympic	2,625	2,525
Ramsey	5,250	5,200
Sasakwa	1,825	1,750
Sholem-Alechem	2,975	2,925
Seminole district:		
Bowlegs	7,100	7,075
Carr City	2,425	2,375
Dora	2,600	2,550
Earlsboro	4,375	4,325
South Earlsboro	575	550
East Earlsboro	2,225	2,175
Little River	6,675	6,375
East Little River	875	875
Maud	650	625
Mission	1,275	1,225
Seminole	7,325	7,075
East Seminole	1,150	1,075
Searight	2,275	1,975
Total Seminole	39,525	38,275
St. Louis-Pearson	35,000	33,500
Tatums	2,175	2,150
Tonkawa-Garber-Thomas	4,075	4,025
Wewoka	1,675	1,650
Yale-Jennings	3,550	3,550
Other pools	94,325	91,525
Total Oklahoma	424,400	435,775

Earlsboro Area

Alma Oil Co. was due to begin work at an outpost in NE NE SE Section 6-9-5, in the Earlsboro district, Pottawatomie County. It is about ½ mile from production. Location is on a subsurface high, with contours on top of Viola lime, mapped by J. Kenneth Keenan, Tulsa geologist. It is to be a Wilcox-sand test.

Gas Showing in Beckham

McLaughlin, Brown & Dugger's No. 1 Herrington, C SW SE Section 26-9-25w, outpost southeast of the Erick gas field in Beckham County, had gas showing at 1,937-2,000 ft., total depth, thought to be sufficient to make a small producer. Operators were preparing to run casing. Location is on a 2,500-acre block assembled by Brown & Dugger, on a structure worked by H. C. McLaughlin. Contract was let to Ed Harris to drill to 2,700 ft. with rotary, and with Bud Lewis to drill to 2,800 ft. with cable tools.

Cement Field

Ray Stephens, Inc.'s No. 1 Wilhite, NE SE SE Section 28-6-10w, Cement field, Caddo County, was rated good for 1,110 bbl. of oil daily after flowing 185 bbl. in 4 hours at 3,451 ft., total depth.

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Southwest Texas District

By F. L. SINGLETON

Encouraging Reports Coming From Southwestern Wildcats

CORPUS CHRISTI, Tex., Jan. 1. — Encouraging reports from scattered wildcats, announcements of several important locations, and testing of new sands in proven fields, featured developments in the Southwest Texas district the past week.

Along the Balcones fault line, in Guadalupe County, H. J. Hollifield's No. 1 D. M. Day, James Hinds Survey, topped Austin chalk at 2,374 ft., and the formation was reported well saturated after it was cored to a total depth of 2,380 ft. The well will be drilled to the Edwards lime before a production test is made. In the same county, in the recently opened New Berlin field, J. E. West and others' No. 1 Lentz, discovery well, pumped 15 bbl. of 42.4-gravity oil on a 24-hour potential test. Production is from sandy shale at 704-28 ft. The field is about 3½ miles southeast of New Berlin in V. Michelli Survey 52. E. A. Weyel and others' No. 1 Thomas, south offset, is drilling in rock below 260 ft., while J. E. West and others' No. 2 Lentz, 900 ft. east of the discovery, is drilling below 117 ft.

In Medina County York Petroleum Co.'s No. 1 Kate Smith, 3 miles southwest of Noonan, Marie Ihnken Survey, is reported to have bailed some oil from a depth of 665 ft., and the hole is being cored deeper in an attempt to increase the production.

In the Laredo district in Webb County, W. C. McBride, Inc.'s No. 1 Laurel Brothers, Survey 719, was abandoned at 2,717 ft. after the well flowed gas and some salt water through perforated casing at 2,580-82 ft.

Clopton & Mitchell and others' No. 1 Seabury, 5½ miles northeast of Rio Grande City, Starr County, is producing from 5 to 8 bbl. of oil per day through ¼-in. choke, with tubing and casing pressure ranging from 20 to 75 lb. This well was drilled to 2,757 ft. and is testing through perforated casing at 1,328-33 ft.

Approximately 1½ miles northwest of the Ricaby field, Starr County, Interstate Minerals, Inc.'s No. 1 Green and Manning, J. J. Garza Falcon Survey, Porcion 81, is bottomed at 1,732 ft. and 7-in. casing was cemented at 1,155 ft.

Testing in Bruni Field

In the Bruni field, Webb County, Tide Water Associated Oil Co.'s No. 7 Bruni is being tested in the Queen City formation through perforated drill pipe at 5,655-65 ft. This well was drilled to the Tertiary Wilcox sand at 8,959 ft. and is being tested at a plugged-back depth due to mechanical trouble caused by excessive gas pressures.

In the West Tuleta field, Bee County, Mills Bennett Production Co. and Anderson-Prichard Oil Corp.'s No. 1 Robinson perforated casing in a sidetracked hole at 4,467-72 ft. and is flowing ¾ bbl. of fluid per hour, of which 85 per cent is salt water and the balance emulsion of oil and basic sediment. The well is testing through a ⅛-in. choke under a working pressure of 800 lb. This well was also drilled to the Tertiary Wilcox formation and was plugged back, due to mechanical trouble as the result of excessive gas pressures.

Along this same trend, in De Witt County, Atlantic Refining Co. let contract for a Tertiary Wilcox test on the Conwell lease, 2 miles west of Thomaston. The company controls a large block which has been worked extensively with geophysical instruments. Contract depth is 8,500 ft.

In Jim Hogg County Mayfair Oil Corp.'s No. 1 I. R. Gutierrez, which showed for a small producer several weeks ago, has been taken over by the Goldruss Drilling Co. and the well pumped 7 bbl. in 6 hours. Production is from a sand and sandy shale section at 3,217-23 ft. Location is in the C. Gutierrez Survey 164.

In the Seven Sisters field, Duval County, Adams & Morris are attempting to complete No. 1 T. E. Chernoskey. Sand with an oil odor is reported to have been cored at 2,186-91 ft., and a production test is being made. The well is in Survey 226, and was originally started by J. W. O'Bryne.

Drilling was started in Duval County on two locations recently staked by Continental Oil Co. Six miles northwest of the Fitzsimmons field, J. Poitevent Survey 325, No. 1 Clara Driscoll is drilling below surface casing, while No. 1-C Clara Driscoll, Section 61, Sweden Farm Lots subdivision of Santa Rosalina grant, is drilling below 2,000 ft. Other locations scheduled to be drilled after the first of the year are Jack Rayzor's No. 1 Wright, a Péttus-sand test northwest of Rosita, and Landreth Production Co.'s No. 1 Cabellero in Survey 281, about 2½ miles southeast of the Thomas Lockhart field. Contract depth is 5,500 ft.

In the northern part of the Saxet field Hiawatha Oil & Gas Co.'s No. 8-B Smith is preparing to core below 10,000 ft. after an electrical survey is reported to have logged approximately 17 ft. of sand showing favorable indications at 9,913-30 ft. It is, with one exception, the deepest test in this area, and the second well in the field to be drilled to the 9,900-ft. horizon which was established as a distillate sand in Richardson Petroleum Co.'s test in the Clarkwood area.

Approximately 2,000 ft. southeast of the discovery well of the Victoria field, Victoria County, Trinity Drillers, Inc.'s No. 1 Ben Moeller perforated casing at 2,554-57 ft. and the well is reported to be cleaning out showing pipe-line oil. Previous testing at 2,552-56 ft. showed gas and a slight show of oil. One mile northwest of production W. S. Boyle's No. 1 G. C. Meyer perforated casing at 4,775-80 ft. and flowed salt water, with a slight show of oil, through a ⅛-in. choke. Tubing pressure was 1,100 lb. and casing pressure ranged from 500 to 1,100 lb. A late report from the field states the well was retested through perforated casing at 4,776-80 ft. and that the well is flowing pipe-line oil through a ¼-in. choke.

In Nueces County Nueces Royalty Co. and others staked location for No. 1 J. S. Jolly, M. L. de Herrera grant, Section 29, George H. Paul subdivision, about 2 miles southwest of Robstown. Southeast of Clarkwood about 7 miles H. J. Porter and others staked location for a 6,500-ft. test on the A. R. Knetig farm, Section 145, in the Delores A. & I. Co. Survey. The lease is a farmout from Texas Co.

Barnsdall Oil Co. opened a new producing area 1½ miles north of the Keeran field, Victoria County, as No. 1-A Keeran, M. De Leon Survey, tested one stand of pipe-line oil and 1,350 lb. of working pressure on a 6½-minute drill-stem test through perforated casing at 5,550-52 ft. The well was drilled to a total depth of 7,509 ft. and screen is being set for final completion.

SOUTHWEST TEXAS COMPLETIONS IN PROVEN FIELDS

Aransas-San Patricio Counties

McCampbell field: Bay Tex Oil Corp.'s No. 1 Easter Sigmund, perforated casing 7,163-68 ft., 125 bbl., ⅞-in. choke. Bay Tex Oil Corp.'s No. 1 Lisk-Craile, 7,600 ft., 119 bbl., ⅞-in. choke. Southern Minerals Corp.'s No. 4 King, perforated casing 7,114-19 ft., 91 bbl., ⅞-in. choke.

Duval County

Cedro Hill field: Texas Co.'s No. 35 Duval County Ranch Co. perforated casing 1,444-47 ft., 90 bbl., 21 hours, jetting. Chiltipin field: Gray & Wolfe's No. 1 Tom Graham, perforated casing 4,801-17 ft., 35 bbl., ⅛-in. choke. Hoffman field: Magnolia Petroleum Co.'s No. 3 Well, perforated casing 2,685-90 ft., gas well. Longhorn field: Hiawatha Oil & Gas Co.'s No. 5 Denman, 6,011 ft., dry and abandoned. M. M. Miller's No. 17 fee, perforated casing 4,891-98 ft., 92 bbl., 5/32-in. choke. Peters field: Henshaw Brothers' No. 1-A Sutherland, 2,692 ft., dry and abandoned. Southland field: Hiawatha Oil & Gas Co.'s No. 4-A Southland Life Insurance Co., 6,015 ft., dry and abandoned.

Caldwell County

Salt Flat field: L. H. Wilson's No. 1 Northcut, 2,691 ft., 37 bbl. oil, 80 bbl. water, pumping.

Calhoun County

Heyser field: Blanco Oil Co. and others' No. 14 Dunwoody, perforated casing 5,485-90 ft., 92 bbl., ⅛-in. choke.

Guadalupe County

Darst Creek field: Gulf Oil Corp.'s No. 11 Dix-McKean, 2,613 ft., 250 bbl. oil, 7 bbl. water, pumping. United North & South Development Co.'s No. 15 Dix, 2,543 ft., 297 bbl. oil and 49 per cent water, pumping.

Jim Hogg County

Kelsey field: Humble Oil & Refining Co.'s No. 17 Bass, 4,749 ft., 108 bbl., 9/64-in. choke.

Jim Wells County

Ben Bolt field: Bridwell Oil Co.'s No. 3 Beasley, perforated casing 5,201-07 ft., 265 bbl., ⅞-in. choke. Magnolia City field: V. J. Meyer and others' No. 1 Reynolds & Richardson, perforated casing 5,705-09 ft., 319 bbl., 21 hours, 7/32-in. choke. Reynolds field: Tom Graham's No. 3-B Mosser, perforated casing 4,877-81 ft., 110 bbl., ¼-in. choke.

Live Oak County

Oakville field: Simmons Oil Co.'s No. 8-B Reagan, 2,838 ft., dry and abandoned.

McMullen County

Munson field: Guy Davis' No. 1 Nueces Land & Livestock Co., sand 1,188-94 ft., 25 bbl., pumping.

Nueces County

Agua Dulce field: Union Producing Co.'s No. 2 Schroeder, perforated casing 4,610-45 ft., gas well. Union Producing Co.'s No. 2 Wallace, sand 4,583-4,622 ft., gas well. South Clara Driscoll field: Wellington Oil Co. and Seaboard Oil Co.'s No. 1 Martin, perforated casing 5,255-63 ft., 307 bbl., ⅞-in. choke. Clara Driscoll field: Wellington Oil Co. and others' No. 1-B Driscoll, perforated casing 5,292-5,300 ft., 87 bbl., pumping. Luby field: Stanolind Oil & Gas Co.'s No. 16 McCann, sand 4,322-42 ft., 108 bbl., ⅛-in. choke. Stanolind Oil & Gas Co.'s No. 17 McCann, perforated casing 5,070-73 ft., 180 bbl., ⅛-in. choke. Stanolind Oil & Gas Co.'s No. 31 Spessard, perforated casing 5,173-77 ft., 111 bbl., ⅛-in. choke. Stanolind Oil & Gas Co.'s No. 33 Spessard, perforated casing 5,173-75½ ft., 110 bbl., ⅛-in. choke. Minnie Bock field: Reed & Cox's No. 1 Parr, perforated casing 3,810-14 ft., 102 bbl., ¼-in. choke. Richard King field: Southern Minerals Corp.'s No. 11-B King, perforated casing 5,593-94½ ft., 87 bbl., ⅛-in. choke.

Refugio County

La Rosa field: Coronado Corp.'s No. 34 Rooke, perforated casing 5,708-11 ft., 141 bbl., ⅛-in. choke.

San Patricio County

East White Point field: Plymouth Oil Co.'s No. 4

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North Louisiana, Arkansas

By GEORGE WEBER

New Smackover Lime Pool in Columbia County, Arkansas

SHREVEPORT, La., Jan. 1.—Completion of a gas-condensate well, marking the discovery of a new Smackover-lime field in Arkansas, featured an otherwise slow week in the Tex-La-Ark area. In addition to this Big Creek field discovery, the Dorcheat pool in Columbia County is due for an extension as edge tests continue, following an east extension of one location in the past week. The Buckner pool was also slightly extended on the east, and activity in Magnolia, the largest field in Arkansas, was increased with edge locations.

Production by Pool

Estimated daily gross production all companies week ended December 29, 1939:

NORTH LOUISIANA

Bellevue	475
Caddo light	5,150
Caddo heavy	2,320
Converse	505
Cotton Valley	*13,200
Cross Lake	4,895
De Soto and Red River	1,070
Elm Grove	300
Haynesville	2,750
Holly	90
Homer	2,750
Lisbon	5,190
Pleasant Hill	90
Rodessa	22,475
Sarepta-Carter lle	†285
Sligo	1,440
Sugar Creek	270
Urania	2,650
Zwolle	2,320
Total	68,225

SOUTH ARKANSAS

Atlanta	640
Big Creek	‡130
Buckner	2,470
Champagnolle	1,340
Dorcheat	430
El Dorado	1,700
Lewisville	650
Lisbon	225
Magnolia	20,725
Miller County	285
Nevada	540
Rodessa	2,935
Schuler	18,040
Smackover light	1,860
Smackover heavy	14,550
Stephens	540
Troy	1,250
Urbana	940
Village	1,400
Total	70,650

*3,175 bbl. is distillate. †105 bbl. is distillate.
‡One well, Standard Oil Co. of Louisiana's No. 1 Petty Stave & Lumber Co., Section 4-17s-21w, completed Dec. 23, 1939, flowing 168 bbl. of 69-gravity distillate and 4,100,000 cu. ft. of gas through 7/32-in. choke.
Texas side of Rodessa, 25,870 bbls.

Big Creek Field

The Standard Oil Co. of Louisiana's No. 1 Petty Stave Lumber Co., a Columbia County wildcat, was completed as a gas-condensate well, and opens the seventh commercial field in the Smackover lime. The importance of the new field is, however, in doubt. The wildcat, in the SE cor. of Section 4-17-21, northwest of Magnolia, topped porous lime at 7,956 ft. and set 6-in. casing at 7,989 ft. after making a good drill-stem test of gas and distillate in the zone. The section between the casing seat at 7,989 ft. and bottom at 7,999 ft. showed salt water when swabbed, and the hole was plugged back to the casing seat and casing perforated at 7,985-88 ft. After washing, the well would not flow and further perforations were shot at 7,980-88 ft., following which the well came in.

Initial gage was 4,100,000 cu. ft. of gas, together with 168 bbl. of water-white condensate daily on a 7/32-in. choke with casing pressure at 2,375 lb. and tubing pressure at 2,325 lb. A later gage showed 170 bbl. of condensate and an estimated 4,500,000 cu. ft. of gas on a 1/8-in. choke with tubing pressure of 2,250 lb. and casing pressure of 2,450 lb. The condensate averages 64.36 gravity.

The relatively thin section of production between the top of the porous lime and the water level in this well detracts from the importance of the new field discovery. It is not probable that the well will be allowed to produce with its present gas-oil ratio, but it may be incorporated into the natural-gasoline plant system in the nearby Magnolia field should that be found economically feasible.

The Dorcheat field was extended on the east this week by the deepest producer in the State of Arkansas. Lion Oil & Refining Co.'s No. 1 Warnock estate, C NW NW Section 15-18-22, bottomed at 9,020 ft., was completed through perforations in 5½-in. casing at 8,876½-88 ft. Casing seat is at 9,007 ft. The initial gage was 264 bbl. on a 13/64-in. choke, with casing pressure at 3,150 lb. and tubing pressure at 2,950 lb. This well is an east offset to the discovery well.

Two extensions to the Atlanta field were seen with completion of Hunt Oil Co.'s No. 1 McWilliams, and the imminent completion of J. K. Mahoney's No. 1 Riley. Buckner, another Columbia County Smackover-lime field, was extended with completion of Standard Oil Co. of Louisiana's No. 1-A N. Johnson, an east offset to a previous 1-mile eastern outpost well.

North Louisiana

Continued testing in Stanolind Oil & Gas Co.'s No. 131 Dillon heirs, deep Pine Island test in Louisiana, failed to give any encouragement that the deep test will produce commercial oil in the Cotton Valley or lower Marine formations. After testing dry at 6,920-63 ft., where a slight show of oil was had previously, the section was squeezed and casing ripped at 6,943-7,060 ft. to retest. Nearby, in the shallow Caddo field, the Temple Oil Co. began two offset tests to its extension of the Caddo-sand production. Success in these two tests may bring a mild drilling boom similar to that earlier this year in the Vivian sector.

The Sligo field of Bossier Parish has a new gasser, Union Producing Co.'s No. 1-A Herold, which flowed 30 to 40 million cubic feet of gas through perforations at 5,070-5,115 ft. in the lower Marine. The well is shut in.

At Lisbon the deep lower Marine gas-condensate producer, Lisbon Exploration Co.'s No. 1 Vaughn, continues shut in awaiting a testing unit which will be moved to the well this week, and flow characteristics and condensate production at varying pressures and temperatures will be ascertained.

(Continued on Page 61)

Two Producing Wells Added To Tinsley, Miss., Field

JACKSON, Miss., Jan. 2.—Two new producers for the Tinsley field of Yazoo County last week added to Mississippi's production, while wildcats in various sections of the state drew additional interest. Leasing and geophysical prospecting showed few signs of slowing up during the holidays, and several new wildcats are expected to begin after the first of the year.

Tinsley Activity

Union Producing Co. completed No. 3 Woodruff, C SE NW Section 13-10n-3w, for a 560-bbl. well, flowing through a 22/64-in. choke from the Woodruff sand of the Selma chalk formation at 4,570-88 ft. This inside well is due to be followed shortly by completion of the same operator's No. 4 Woodruff, which late this week encountered a reported 38 ft. of oil sand in the sand horizon. A drill-stem test on No. 4 showed 2,100 ft. of oil in 9 minutes at 4,724-51 ft. earlier in the week.

Following these completions came a number of new locations, retaining the field's drilling activity. Hassie Hunt of Dallas has taken over the Tinsley acreage of the Southern Natural Gas Co., reported to amount to 1,200 acres, and has staked three locations, two of which are already spudded. The two new Hunt tests, Nos. 1 and 2 J. C. Johnson, located along the eastern edge of Section 11-10-3, offset two Jones & O'Brien tests on the west. An east-edge location, R. B. Sanders' No. 1 Milner, NW cor. Section 18-10-2, was also staked, and Union Producing Co. has staked an east offset to its No. 1 Perry on the south side of the field.

The northwest outpost wildcat, T. B. Slick's No. 1 Atkinson, located in the NW NE SW Section 3-10n-3w, having had no show of oil to the total depth of 5,083 ft., is reported dry and abandoned. Between this failure and the field proper, Edgar Johnston's No. 1 Broomfield, SE SE Section 2 10-3, is drilling below 4,350 ft.

Yazoo Wildcat

The Conroe-Wilcox Minerals, Inc.'s No. 1 Stubblefield, due east of Yazoo City and 4 miles north of the town of Benton, has resumed drilling, despite failure to find production in the formations drilled to 5,015 ft. The chalk was topped at 4,727 ft., and latest reports name the wildcat drilling below 6,000 ft.

A second failure in Hinds County was confirmed with the abandonment of the Plains Producing Co.'s No. 1 Gaddis Farms, which was drilled to a total depth of 6,342 ft. The chalk was topped at 4,972 ft. and the Eutaw formation at 6,337 ft. with no shows reported in either horizon.

To the east in the Jackson field, Rankin County, Wilmut Gas & Oil Co. brought in No. 1 Boehle, 1,220 ft. north and 560 ft. east, C Section 8-5n-2e, for a reported initial production of 25,000,000 cu. ft. of gas at 2,461 ft. A string of 7-in. casing was set at 2,460 ft.

Wildcats continued active in a few counties, while in most cases they remained shut down during the past week. In the northeastern part of the state G. C. Grasty's No. 1 Kentucky Lumber Co., an Itawamba County wildcat, is shut down while changing over to cable tools to continue drilling below 1,794 ft. after the holidays.

A new wildcat in Jefferson Davis County promises to attract considerable interest now that it has resumed drilling. F. E. Courson and others' No. 1 L. J. Bailey, C SW SW NE Section 4-6n-18w, spudded during the past week and is now shut down. This is the only wildcat in that section of the state known as the Sparta-Wilcox trend.

The wildcat is located in the high divide country in

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Texas and Louisiana Gulf

By
NEIL WILLIAMS

Water in Anchor Pool Tests; 2 Good Louisiana Prospects

HOUSTON, Tex., Jan. 1.—Hebert & Smith's No. 1 Guiterman, approximately 1 mile northeast of the South China field, Jefferson County, Texas, was the center of interest along the Gulf Coast district as casing was cemented for a production test. The hole is bottomed at 8,000 ft. and 5½-in. casing was cemented at 7,650 ft. to test a sand section showing oil and gas at 7,491-7,521 ft. The well is on a farmout lease from Magnolia Petroleum Co. in the C. T. Taylor Survey.

Testing of two important outposts to the Anchor field, Brazoria County, continues to attract attention although both wells showed salt water earlier in the week. Humble Oil & Refining Co.'s No. 1 Mettler, about 1 mile northeast of production, perforated casing at 10,578-85 ft., and the well flowed 5 bbl. of fluid per hour of which 61 per cent was salt water, and 37 per cent 40.2-gravity oil. The test was made through a ¼-in. choke and tubing pressure was built up to 3,050 lb. The perforations were squeezed off and the casing is to be reperforated at a higher level. Approximately ½ mile northwest of the discovery well, Glenn McCarthy's No. 1 Salmon & Mumma flowed gas and salt water from perforated casing at 10,518-25 ft. Tubing pressure built up to 700 lb. Location for another well was made in the field by Humble Oil & Refining Co. for No. 1 Crockett in the center of Lots 87-B, 87-C, 87-D and 87-E, J. de Jesus Valderas Survey.

In the same county and located in the Chocolate Bayou field, Glenn McCarthy's No. 1 Andrau, approximately 1 mile northwest of the discovery well is drilling in shale below 10,061 ft. Slight shows of gas and distillate were logged in cores at intervals from 9,859-9,997 ft. The same operator's No. 2 Houston Farm Development Co., about 3,000 ft. northwest of the discovery well, is drilling in shale below 10,126 ft.

Abandon Darrington Test

In the Juliff area, Brazoria County, John Mayo and others' No. 1 Darrington State Prison Farm was abandoned at 9,150 ft. with no showings reported by an electrical survey. This well is in the A. McFarland League, about 2,000 ft. southwest of Hamman Exploration Co.'s No. 1 Darrington State Prison Farm, an abandoned well which is credited with having logged several interesting showings. In the same area, but across the line in Fort Bend County, Gulf Oil Corp.'s No. 1 Russell Brown is being abandoned at 8,505 ft. At this depth the well is reported to have flowed salt water through the drill pipe.

Magnolia Petroleum Co.'s No. 1 R. G. Huntington, a prospective pool opener northwest of the town of Rosenberg in Fort Bend County is plugging back to retest after a 25-minute drill-stem test at 8,662-72 ft., recovered 820 ft. of salt water. The next test is expected to be made at approximately 8,256 ft. where sand showing gas and distillate was logged. Approximately ½ mile southwest of the discovery well of the Rosenberg field, Fort Bend County, Fred Browning's No. 1 Sacha is drilling in shale below 7,698 ft. with no shows reported. The Jackson was topped at 6,350 ft. and the Textularia Hockleyensis at 6,592 ft.

Davis & Co., Inc.'s No. 1 McLane, located in the Garwood area, Colorado County, continues to attract attention as additional showings of gas and distillate are logged as the well cores ahead below 10,176 ft. Broken sand and shale in the Tertiary Wilcox formation, carrying an odor of gas and distillate, was logged at intervals from 10,140-76 ft.

The Cedar Point field, offshore from Chambers County in Galveston Bay, was defined to the northeast as Standard Oil Co. of Texas' No. 61-120 State, 1 mile from production was abandoned at a total depth of 6,400 ft.

Humble Oil & Refining Co.'s No. 3-A Wolters is reported to be showing for a producer while it is being cleaned out from a total depth of 5,423 ft. The well is on the southwest flank of the Thompson field, about 2,000 ft. from production.

Louisiana Coastal Fields

Along the Louisiana coast, Tide Water Associated Oil Co.'s No. 1 Delta Farms Co., Bayou Brussel prospect, La Fourche Parish, is reported to have logged additional showings of oil and gas in a sand section at 11,775-11,804 ft. Other showings previously reported were logged at 8,918-26 ft., 11,272-82 ft., 11,295-11,307 ft., and 11,313-20 ft. The well may be drilled to 12,000 ft. before casing is cemented for a production test.

Another wildcat looked upon as a possible pool opener is Plymouth Oil Co.'s No. 1 McHugh, Bayou Pigeon prospect, Iberia Parish. A drill-stem test the previous week at 7,277-85 ft. recovered pipe-line oil and the well is drilling ahead below 7,800 ft. in search of deeper production.

Another failure was marked up for the Perkins distillate field, northern Calcasieu Parish. Humble Oil & Refining Co. abandoned No. 3 Edgewood Land & Logging Co. at 7,386 ft. The well is southeast of the discovery well in Section 5-8s-10w.

Locations for two interesting wildcats were announced for Jefferson Davis Parish. Northeast of the South Jennings field, H. M. Naylor staked location for No. 1 Acadia Development Co. in Section 12-10s-2w. Several miles west of the South Roanoke field, Continental Oil Co. is moving in material for No. 1 Niblett's farms in Section 1-11s-5w, a projected 9,000-ft. test.

In the Woodlawn field, Jefferson Davis Parish, Union Sulphur Co. staked location for No. 1 W. L. Trimble, an east outpost test in Section 7-9s-5w. The location is an east offset to Strake Petroleum Co.'s No. 1 Miller, an 8,500-ft. dry hole. The Trimble test will be drilled to a depth below 9,800 ft.

TEXAS GULF COAST COMPLETIONS IN PROVEN FIELDS

Brazoria County

Hastings field: Stanolind Oil & Gas Co.'s No. 18 Sneed, perforated casing 5,632-96 ft., 618 bbl., ¼-in. choke. Old Ocean field: Harrison & Abercrombie's No. 7 Armstrong, sand 10,070-74 ft., 444 bbl., various chokes. Sun Oil Co.'s No. 3 Campbell, 10,510 ft., 354 bbl., ¼-in. choke.

Chambers County

Anahuac field: Humble Oil & Refining Co.'s No. 45 Middleton, 7,235 ft., 624 bbl., ¼-in. choke. Cedar Point field: Standard Oil Co. of Texas' No. 61-120 State, 6,400 ft., dry and abandoned. Barbers Hill field: Texas Gulf Producing Co.'s No. 30-B Kirby Petroleum Co., sand 3,400-56 ft., 341 bbl., ¼-in. choke. Cotton Lake field: Salt Dome Oil Corp.'s No. 1-F Lawrence, 6,524 ft., 88 bbl., ¼-in. choke.

Fort Bend County

Thompson field: H. N. Naylor's No. 2 Hampil, sand 7,880-7,934 ft., 920 bbl., ¼-in. choke. Gulf Oil Corp.'s No. 1-B Wolters, sand 5,389-5,410 ft., 656 bbl., ½-in. choke.

Galveston County

High Island field: Stanolind Oil & Gas Co.'s No. 9-B Smith, 6,092 ft., 13 bbl., ⅛-in. choke. League City field: Phillips Petroleum Co.'s No. 6 Lobit, 9,303 ft., 218 bbl., ¼-in. choke.

Harris County

Clear Lake field: Humble Oil & Refining Co.'s No. 27-C Humble-West, sand 5,906-12 ft., 576 bbl., ¼-in. choke. Friendswood field: Humble Oil & Refining Co.'s No. 20 West, sand 5,880-6,042 ft., 524 bbl., ¼-in. choke. Pierce Junction field: Rio Bravo Oil Co.'s No. 35-A Settegast, sand 4,000-27 ft., 184 bbl., ¼-in. choke. Tomball field: Humble Oil & Refining Co.'s No. 1 Zimmer, sand 5,558-65 ft., 35 bbl., ½-in. choke.

Jackson County

West Ranch field: Magnolia Petroleum Co.'s No. 21-A West, perforated casing 5,492-94 ft., 64 bbl., ¼-in. choke. Magnolia Petroleum Co.'s No. 33-A West, perforated casing 5,540-44 ft., 276 bbl., ¼-in. choke. Magnolia Petroleum Co.'s No. 34 West, sand 5,110-24 ft., 198 bbl., ¼-in. choke. Magnolia Petroleum Co.'s No. 36 West, perforated casing 5,534-42 ft., 405 bbl., ¼-in. choke.

Jefferson County

Clam Lake field: Shell Oil Co., Inc.'s No. 8 McFaddin, sand 5,943-53 ft., 132 bbl., ½-in. choke.

Orange County

Orange field: Ryan & Tillery's No. 1 Chesson-Granger, sand 5,735-69 ft., 91 bbl., ½-in. choke.

Polk County

Segno field: Jordan Drilling Co.'s No. 1 Hughes, sand 8,029-8,103 ft., 132 bbl., ¼-in. choke.

Wharton County

Magnet field: Humble Oil & Refining Co.'s No. 22 Cockburn, sand 5,533-45 ft., 551 bbl., ¼-in. choke. Pickett Ridge field: Texas Co.'s No. 1 Nilson, sand 4,698-4,705 ft., 63 bbl., ¼-in. choke. Withers field: Pan American Production Co.'s No. 3 Britton, sand 5,547-51 ft., 383 bbl., open tubing.

Mississippi Fields

(Continued from Page 57)

the central part of the county, regarded as one of the most interesting areas on the trend. Sandstones of the Catahoula formation come very near to the surface, as established from the records of water wells, and dip off in all directions with an indicated closure of from 40 to 60 ft. The top of the divide is covered with a thick mantle of Pliocene sands and gravels which effectually obscure all of the underlying deposits, but on the sides of the divide, Miocene clays of the Hattiesburg formation are found.

Reflection seismograph surveys of the area were run early in 1934, and while reflections were considered good, the weathered zone was very irregular owing to the unequal deposition of the Pliocene beds.

The area is of further interest due to the drilling of a wildcat in Section 14-6n-18w in 1925. This test, called the old Burkett well, is on the lower southern flank of the structure as defined by seismograph work. While information regarding the well was generally unreliable, it is known from good sources that at a depth of 3,125 ft., the operators penetrated 2 ft. of oil sand. A poor cement job prevented effective shutoff of water, but the well is reliably reported to have produced about ½ bbl. of oil daily, that amount having been bailed for about 2 weeks.

Since the original seismograph survey, the general area has been shot by seismograph and gravity-meter crews for three major oil companies, and acreage has been taken. With the accelerated interest in Mississippi, brought about by the Tinsley discovery, and the present test, backed by the majors interested in the area, was spudded December 20, and will resume activity this month. Contract depth is 4,000 ft., which should carry the well 700 to 800 ft. into the Tertiary Wilcox and provide an adequate test of the Eola and Urania producing horizons.

California Field Report

By L. P. STOCKMAN

Southeast Coalinga Closed Year With 2 Good New Wells

LOS ANGELES, Calif., Jan. 1.—As a fitting climax to a most successful year, the Southeast Coalinga field of Fresno County yielded two new wells. R. S. Lytle, operating for Honolulu Oil Corp., Seaboard Oil Corp. and stockholders of Petroleum Securities Co., finished No. 42-18-F in Section 18-20-16 flowing 3,700 bbl. of 32.1-gravity oil and 2,500,000 cu. ft. of gas daily from the Gatchell zone of Eocene age, with bottom of the hole at 7,660 ft. It flowed through a 72/64-in. bean, tubing pressure 950 lb., casing pressure 1,350 lb. Top of the Gatchell zone was logged at 7,132 ft., base of the productive Gatchell zone was found at 7,645 ft., and the bottom of the hole was in siltstone at 7,660 ft.

Texas Co. completed No. 1 Anderson flowing 1,375 bbl. of clean 29.8-gravity oil and 450,000 cu. ft. of gas daily through a 15/64-in. bean behind a tubing pressure of 1,300 lb. and a casing pressure of 1,380 lb. The small bean used is indicative that the initial assigned the well is far below its capacity. No. 1 Anderson was bottomed in oil sand at 8,200 ft. Top of the productive Gatchell oil sand was logged at 7,627 ft. and bottom of the hole is still in the pay. The southern outpost of Universal Consolidated Oil Co. was still in the pay at last reports at 7,885 ft. and the well should be given a production test within the next week. This well, No. 81-24-C in Section 24-20-15, is the most southerly drilling well in the Southeast Coalinga field. A successful completion will mean the starting of at least three wells in the immediate vicinity.

Wilmington

Completions averaged one a day in the Wilmington field of Los Angeles Basin last week. No. 8-W of Long Beach Oil Development Co. was brought in flowing 179 bbl. of 20.7-gravity oil daily from the Ranger zone, 149 bbl. of clean 22.4-gravity oil daily from the upper Terminal zone and 360 bbl. daily from the lower Terminal zone. Bottom of the hole was 3,865 ft. and production from the Ranger and upper Terminal zones was through 12/64-in. beans, while production from the lower Terminal zone was produced through a 14/64-in. bean.

No. 8-W of Long Beach Oil Development Co. was brought in flowing 102 bbl. of 25.9-gravity oil per day from the upper Terminal zone and 473 bbl. daily from the lower Terminal zone. The Ranger or upper zone was shut in and not produced. Bottom of the hole is at 4,002 ft. and production from both of the zones on production was through 18/64-in. beans. Both No. 8-W and 9-W of Long Beach Oil Development Co. were tideland wells.

Additional Wilmington Completions

No. 123 Harbor of Union Pacific Railroad Co., in the Long Beach Harbor section of the Wilmington field, was completed flowing 123 bbl. of 16.5-gravity oil, cutting 10 per cent, from the Ranger zone with bottom of the hole at 3,565 ft. No. 126 Harbor of Union Pacific Railroad Co. was completed flowing 148 bbl. of 16.5-gravity oil daily from the Ranger zone with bottom of the hole at 3,659 ft.

Royalty Service Corp. recompleted No. 3-A Santa Fe after the well had been deepened to the Ford zone at 5,720 ft., but it was good for only 320 bbl. of 29.8-gravity oil on the beam. It failed to show a natural flow but the additional depth added ot the hole increased the gravity from around 18° to 29° and therefore increased the revenue. No. 1 Carter of Bristol Oil Co. completed at 3,700 ft. flowing 345 bbl. of 14.8-gravity oil, cutting 3 per cent, from the Ranger zone. No. 6 Harbor of D. D. Dunlap was completed at 3,057 ft., in the Ranger zone, but it showed an initial production of only 82 bbl. per day on the beam.

Montebello

In the Montebello extension Pueblo Oil Co. completed No. 2 Bird flowing 720 bbl. of 36.2-gravity oil and 520,000 cu. ft. of gas daily from La Merced zone with bottom of the hole at 7,590 ft. No. 1 Community of Angle Oil Co., completed at 7,640 ft., was good for 244 bbl. of 35.3-gravity oil and 450,000 cu. ft. per day from La Merced zone. No. 1 Zinn of M.O.C. Oil Co., completed in La Merced zone at 7,606 ft., flowed 365 bbl. of clean 35.4-gravity oil and 902,000 cu. ft. of gas daily. Top of the 8-1 oil sand was cored at 7,504 ft. and the well is producing from the same zone.

Coastal District

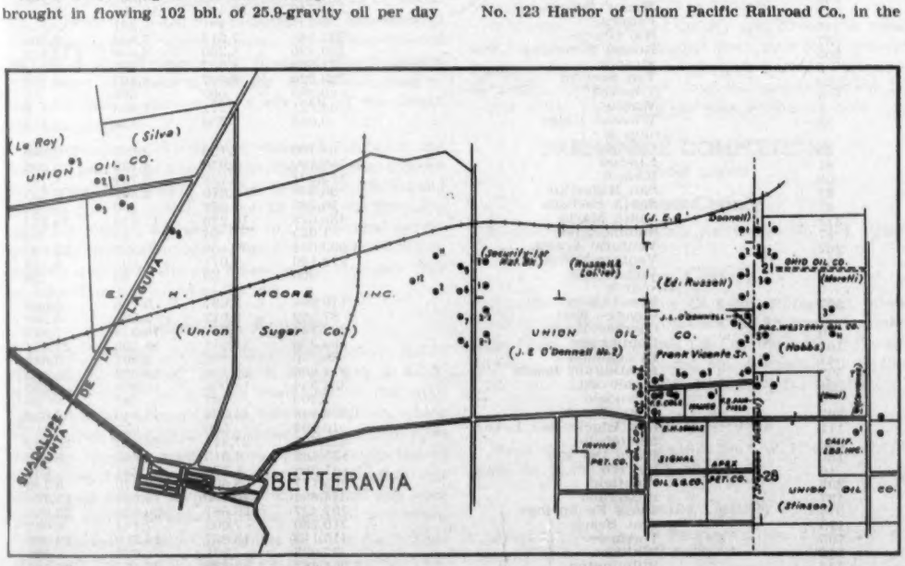
The Santa Maria Valley field has broken out into what may prove to be an aggressive drilling campaign. About 2 weeks ago Navy Oil Co. completed No. 1 O'Donnell, in Section 29-10-34, flowing 3,750 bbl. daily and this week E. H. Moore completed No. 11 Union Sugar in Section 10-10-34 pumping 238 bbl. of 15.5-

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	—Decemeber 24— Total this week	Daily average	—December 17— Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic—						
Crude oil	27,998	4,000	.....	.....	946,537	924,037
Fuel oil	.....	.....	.....	.....	2,100,141	200,201
Diesel and gas oil	85,778	12,254	.....	.....	249,279	.....
Gasoline	18,997	2,714	.....	.....	3,513,358	2,879,623
Kerosene	.....	.....	.....	.....	225,197	333,628
Foreign exports—						
Crude oil	196,400	28,057	248,296	35,471	14,925,375	20,814,514
Fuel oil	45,854	6,551	318,941	45,563	8,692,168	8,985,522
Diesel and gas oil	.....	.....	183,809	26,258	7,767,649	5,654,431
Gasoline	106,243	15,178	114,273	16,325	7,136,110	7,957,187
Kerosene	.....	.....	31,476	4,497	1,830,056	1,168,393
Asphalt	.....	.....	.....	.....	.....	7,563
Lubricants	.....	.....	.....	.....	165,166	192,272
Coastwise-domestic—						
Crude oil	163,481	23,354	260,143	37,163	12,256,047	11,213,527
Fuel oil	201,007	28,715	218,726	31,247	10,433,353	12,088,714
Diesel and gas oil	49,624	7,089	34,211	4,887	2,274,718	1,243,537
Gasoline	240,211	34,316	302,388	43,198	16,385,787	14,266,238
Kerosene	29,618	4,231	16,550	2,364	222,408	252,418

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Fuel oil	.....	.....	.....	.....	188,882	.....
Diesel and gas oil	.....	.....	72,496	10,357	386,588	320,231
Gasoline	.....	.....	.....	.....	43,235	25,409
Kerosene	.....	.....	.....	.....	100,507	16,124
Asphalt	.....	.....	.....	.....	501,323	490,039
Lubricants	.....	.....	.....	.....	24,870	19,945
Foreign exports—						
Crude oil	234,405	40,629	46,788	6,684	5,729,337	5,307,470
Fuel oil	88,938	12,705	61,484	8,783	3,038,490	2,405,862
Diesel and gas oil	37,048	5,293	16,411	2,344	2,703,637	3,224,421
Gasoline	.....	.....	58,112	8,302	3,001,289	5,312,677
Kerosene	.....	.....	77,965	11,138	632,554	696,099
Asphalt	.....	.....	.....	.....	22,323	56,258
Lubricants	.....	.....	17,428	2,490	642,722	556,847
Other finished oil	.....	.....	.....	.....	815	.....
Coastwise-domestic—						
Fuel oil	180,255	25,751	130,606	18,658	6,384,785	6,733,806
Diesel and gas oil	46,922	6,703	40,255	5,751	1,406,771	1,554,257
Gasoline	234,605	33,515	210,167	30,024	8,012,940	7,776,830
Kerosene	45,210	6,459	20,215	2,888	1,023,731	693,191



The Santa Maria Valley field of Santa Barbara County, California, which has experienced more vicissitudes than most fields due to inability of operators to agree on a stabilization program, has yielded a number of large flowing wells in the hot spot area in the past several weeks and indications point to further drilling

gravity oil daily from 4,655 ft. and Union Oil Co. should have No. 2-5 O'Donnell in Section 29-10-34 tanking oil within another week. Union is making preparations to start work on No. 2-4 O'Donnell in Section 29-10-34 and on No. 1 Russell & Lollier in Section 20-10-34, both of which are made necessary by reason of offset requirements. On the Paderewski ranch, formerly owned by the renowned pianist, F. E. Cole is rigging up No. 3 preparatory to an early spud. The going price for Santa Maria Valley crude oil is around 30 cents per barrel and since most of the small refiners in that area throw away the resulting residual, extremely heavy fuel or heavy asphalt, any profits shown must come out of the top cut. This crude contains around 20 per cent gasoline with a rather high sulfur content.

In the San Miguelito field, the eastern portion of which may be found to be the western end of the Ventura Avenue field, Continental Oil Co. is making preparations to complete No. 14 Grubb in Section 24-3-24 and is in the pay in No. 13 Grubb in the same area. Chansior Canfield Midway Oil Co., in the Rincon field of Ventura County, has a potential producer in the pay and two others just above the sand. Three locations have been staked for immediate work.

Kettleman North Dome

Kenda (Kettleman North Dome Association) completed a well in the North dome of Kettleman Hills when No. 47-26-Q in Section 26-22-18 was brought in flowing 2,000 bbl. of 35.6-gravity oil and 1,248,000 cu. ft. of gas per day from the Temblor with bottom of the hole at 7,875 ft. The cement job was through perforations at 6,877 ft., 7,141 ft., 7,383 ft., 7,658 ft., and at 7,745 ft. Production is flowing through 6,520 ft. of 3-in. tubing. After a rather dismal showing and apparent lack of desire to proceed farther, operators in the Kettleman North dome have decided to go ahead with development of the Avenal zone of Eocene age. Superior Oil Co. is drilling No. 4 Huffman below 10,550 ft. with the Eocene as its objective and Union Oil Co. has started No. 9 King, an entirely new well that will be drilled from the grass roots. Other deep Eocene tests include Nos. 27-19-J and 72-19-J of Standard now going ahead and Nos. 321-29-J and 334-29-J, which are scheduled to get under way early in 1940.

San Joaquin Basin

Union Oil Co. completed a flowing well in the Cole's Levee field of Kern County when No. 56-11 Kern County Land in Section 11-31-25 in the extreme eastern end of the district was brought in flowing 626 bbl. of 36.3-gravity oil and 440,000 cu. ft. of gas daily from the Stevens sand with bottom of the hole at 9,979 ft. Tide Water Associated Oil Co. appears to have found the southeastern edge of the field as No. 81 Kern County Land in Section 14-31-25, bottomed at 10,934 ft., but plugged back to 10,815 ft., came in wet on a production test, and failed to show any kick.

In the Canal field of Kern County Ohio Oil Co. completed No. 16-E Kern County Land in Section 13-30-25 flowing 2,391 bbl. of clean 36.3-gravity oil and 1,661,000 cu. ft. of gas daily from the Stevens sand with bottom of the hole at 8,330 ft. Production was coming through a 1-in. bean and the well showed a tubing pressure of 450 lb. and a casing pressure of 1,150 lb., indicating that it is capable of increasing its flow. Top of the productive Stevens was cored at 8,163 ft. and the hole was finished with a 7-in. water string cemented at 8,192 ft. and 168 ft. of 4¾-in. liner landed at 8,328 ft. and carrying perforations at 8,192-8,328 ft.

Los Angeles Basin

In the Huntington Beach field of Los Angeles Basin in Orange County, Southwest Exploration Co. completed a tideland well bottomed beneath the Pacific Ocean and immediately started work on another well that will also be bottomed in the tideland accumulation beneath the ocean. The new well finished this week was No. 24 State, pumping 505 bbl. of very clean 26.3-gravity oil daily from a deviated depth of 5,135 ft.

In the Long Beach or Signal Hill field of Los Angeles County, Johnston Drilling Co. completed No. 39 Signal pumping 132 bbl. of clean 22.3-gravity oil per day from the Repetto formation of Pliocene age with bottom of the hole at 3,486 ft. Jack McKeon recompleted No. 1 Mitchell pumping 151 bbl. of 24.2-gravity oil, cutting 13 per cent, from 3,270 ft. This well originally completed at 4,840 ft. was redrilled to 3,270 ft. and the hole finished with a string of 7-in. casing landed at that depth.

In the Torrance field of Los Angeles Basin, Penguin

(Continued on Page 69)

Summary of California Oil Fields for November 1939

According to figures collected by the American Petroleum Institute, the total production of crude oil in California for November amounted to 18,382,277 bbl., an average of 612,742 bbl. per day. This is a decrease of 3,349 bbl. per day under October production.

Total stocks of crude and all products in Pacific Coast territory decreased during the month 1,384,081 bbl. The total stocks at the end of the month were 151,876,452 bbl. The total stock decrease for 1939, up to November 30, was 5,807,837 bbl.

Eighty-five wells were completed during the month with an initial daily production of 73,043 bbl., compared with 67 wells completed during October, with an initial production of 56,581 bbl.

OIL-FIELD DEVELOPMENT

	New rigs up	Active drilling	Producers completed	Daily initial output	Active producing	Abd. wells—Drillers	Abd. wells—Producers
Group 1:							
Arvin	1	2	..	..	11	..	..
Belridge—North	1	2	1	100	75	..	..
Belridge—South	..	..	..	..	83	..	..
Canal	1	2	2	2,024	30	..	..
Canfield ranch	..	..	..	..	1	..	..
Coalinga	7	19	6	10,478	888	3	1
Cole's Levee	1	9	2	1,655	10	..	..
Edison	..	2	..	..	88	..	..
Elk Hills	..	..	..	..	169	..	..
Fruitvale	..	1	3	372	174	..	1
Greeley	4	5	1	1,992	22	..	1
Kern River	2	5	4	22	1,498	2	..
Kettleman Middle dome	..	..	..	..	..	..	..
Kettleman North dome	7	17	3	7,781	237	..	..
Lost Hills	..	..	..	..	287	..	..
McKittrick	1	1	..	..	200	..	..
Midway-Sunset	1	6	2	115	2,555	3	3
Mountain View	..	1	1	100	186	..	..
Mount Poso	1	..	2	645	272	1	..
Paloma	..	2	..	..	1	..	..
Rio Bravo	1	3	3	6,865	37	..	..
Round Mountain	..	..	..	..	205	..	1
Strand	1	2	..	..	5	..	..
Ten Section	..	2	1	3,032	29	..	..
Tupman	1	2	1	1,600	4	..	..
Wasco	..	1	..	..	7	..	..
Wheeler Ridge	..	..	..	..	33	..	..
Group 2:							
Capitan	..	..	..	..	45	..	..
Elwood	..	..	..	..	81	..	..
Rincon	1	..	1	302	56	..	..
San Miguelito	..	2	1	729	21	..	..
Santa Barbara	..	..	..	..	27	..	..
Santa Maria	1	2	2	6,970	271	..	..
Summerland	..	..	..	..	17	..	..
Ventura Avenue	3	13	6	12,029	262	..	..
Ventura-Newhall	4	7	..	..	551	1	..
Watsonville	..	..	..	..	7	..	..
Group 3:							
Brea-Olinda	..	..	..	..	357	..	2
Coyote—East	1	1	1	564	78	..	..
Coyote—West	..	..	..	..	60	..	..
Dominguez	1	4	..	..	162	..	..
El Segundo	..	..	..	..	47	..	..
Huntington Beach	..	2	3	704	533	..	3
Inglewood	..	..	..	..	221	..	..
Lawndale	..	..	..	..	5	..	..
Long Beach	3	8	..	..	1,303	..	2
Los Angeles-Salt Lake	..	..	..	..	111	..	..
Montebello	10	32	21	9,218	322	..	..
Playa Del Rey	..	..	..	..	162	..	3
Potrero	..	1	..	..	16	..	..
Richfield	..	1	..	..	298	..	..
Rosecrans	5	4	1	198	137	..	..
Santa Fe Springs	..	..	..	..	574	..	2
Seal Beach	2	1	..	..	115	..	..
Torrance	..	2	1	88	705	..	4
Whittier	..	..	..	..	146	..	..
Wilmington	16	15	14	5,460	744	..	..
Miscellaneous drilling	7	25	..	..	..	6	..
Group 4—gas fields:							
Buena Vista Lake	..	..	..	..	3	..	..
Buttonwillow	..	..	..	..	23	..	..
Chowchilla	..	..	..	..	..	..	..
Delano	1	..	1	gas	6	..	..
Dudley Ridge	..	..	..	..	..	..	..
Fairfield Knolls	..	..	..	..	..	..	..
Goleta	..	1	..	..	..	..	..
Marysville Buttes	..	1	..	..	3	..	..
McDonald Island	..	..	..	..	5	..	..
Rio Vista	..	..	1	gas	22	..	..
Semi-Tropic	..	..	..	..	2	..	..
Tracy	..	..	..	..	3	..	..
Total November	85	208	85	73,043	14,510	16	23
Total October	97	216	67	56,581	14,491	10	27
Increase (*decrease)	*12	*10	18	16,462	19	6	*4

CRUDE PETROLEUM PRODUCTION

(Figures of production and stocks are in barrels of 42 gal.)

	Total production November	Daily average Nov., 1939	Daily average Oct., 1939	Daily average Nov., 1938
Group 1:				
Arvin	76,280	2,543	2,056	.....
Belridge—North	354,565	11,819	11,864	12,498
Belridge—South	34,195	1,140	1,163	1,135
Canal	168,429	5,614	5,854	3,545
Canfield ranch	2,234	75	86	58
Coalinga	580,991	19,366	20,805	8,124
Cole's Levee	53,670	1,789	1,631	160
Edison	69,280	2,309	2,244	2,596
Elk Hills	340,540	11,351	10,155	10,224
Fruitvale	182,167	6,072	6,115	7,784
Greeley	83,584	2,786	2,611	2,419
Kern River	350,847	11,695	11,462	11,280
Kettleman Middle dome	.....	.....	2	38
Kettleman North dome	1,531,690	51,056	52,042	61,263
Lost Hills	102,606	3,420	3,572	3,255
McKittrick	107,200	3,573	3,629	3,537
Midway-Sunset	1,484,149	49,472	48,653	55,507
Mountain View	220,760	7,359	7,657	9,298
Mount Poso	314,740	10,491	10,866	14,145
Paloma	5,737	191	221	.....
Rio Bravo	237,545	7,918	7,844	9,704
Round Mountain	250,490	8,350	8,040	12,816
Strand	31,993	1,067	727	.....
Ten Section	263,920	8,797	8,561	8,797
Tupman	20,983	699	596	56
Wasco	38,121	1,271	1,335	470
Wheeler Ridge	9,888	330	332	312
Group 2:				
Capitan	64,760	2,159	2,230	2,880
Elwood	119,100	3,970	4,122	5,002
Rincon	112,091	3,738	3,737	4,141
San Miguelito	86,376	2,876	2,801	2,535
Santa Barbara	10,245	342	299	394
Santa Maria	486,678	16,223	17,718	19,253
Summerland	1,025	34	24	32
Ventura Avenue	1,093,674	36,456	36,392	33,943
Ventura-Newhall	212,130	7,071	7,095	5,544
Watsonville	900	30	30	30
Group 3:				
Brea-Olinda	170,898	5,697	5,790	5,660
Coyote—East	87,352	2,912	2,586	3,064
Coyote—West	232,124	7,737	10,038	7,972
Dominguez	564,336	18,811	18,396	27,334
El Segundo	86,756	2,892	2,901	5,624
Huntington Beach	814,690	27,156	26,802	31,102
Inglewood	392,534	13,085	13,008	13,400
Lawndale	1,403	47	48	69
Long Beach	1,330,844	44,361	45,140	53,600
Los Angeles-Salt Lake	16,494	550	527	515
Montebello	822,321	27,411	26,047	15,572
Playa Del Rey	135,463	4,515	4,580	5 656
Potrero	41,368	1,379	1,221	634
Richfield	255,177	8,506	8,670	8,730
Rosecrans	314,694	10,490	10,631	15,703
Santa Fe Springs	797,427	26,581	26,626	30,616
Seal Beach	210,280	7 009	7,144	8.042
Torrance	415,118	13,837	14,219	19 303
Whittier	27,928	931	976	935
Wilmington	2,561,487	85,383	86,170	96,444
Total	18,382,277	612,742	616,091	662,800
Total October	19,098,804	616,091		
Decrease	716,527	3,349		

West Texas Field Work at Minimum During Holidays

By D. H. STORMONT

MIDLAND, Tex., Jan. 1.—The seasonal holidays spread their effects throughout the oil fields during the past week, little activity was reported in the way of locations or completions.

Announcement of plans for the construction of a new and extensive water-distribution system for the rapidly growing Cedar Lake pool of northeastern Gaines County, together with favorable developments in several of Ector County's link tests between North Cowden and Foster, led the activity of the week in the district.

Cedar Lake Pool

The Cedar Lake pool, now consisting of three producing wells and others in the process of drilling, lacks an adequate water supply suitable for drilling purposes. The field is on the eastern shores of Cedar Lake which is an alkaline flat during the dry months of the year. The water, when present, contains minerals destructive to boilers. John W. Herbert, Herbert Oil Corp., Fort Worth, plans a 6-in. pipe line running from Section 29, Block H, D.&W. Survey, where five water wells, with an input of 500 gal. per minute each, have been drilled, to Section 4 near the edge of the townsite of Cedar Lake where a pump station is to be erected. Herbert and associates have under lease several thousands of acres of land north and west of the present pool. The water wells are on this land and are producing from depths varying from 100 to 160 ft. The company plans to exand the water system with the development of the pool, with lateral lines to the various drilling wells as needed.

Meanwhile, Stanolind Oil & Gas Co.'s No. 1 Riley, Section 11, 3 miles north of the Cedar Lake pool proper, was moving in machine to clean out hole following a 730-qt. shot in the pay at 4,762-4,864 ft., total depth. The company's No. 1 Johnson, southwest offset to the discovery, has cemented casing at total depth of 4,400 ft.

Ector County

Landreth Production Corp. and Shell Oil Co., Inc.'s No. 1-A Johnson, Section 43, Block 43, Township 1s, T.&P. Survey, central Ector County wildcat test between the North Cowden, Foster and Harper pools, is drilling below its original contract depth of 4,300 ft. No response was noted to a two-stage acid treatment in lime from 4,264 to 4,276 ft. where the wildcat showed 16 bbl. of oil daily last week. Operators are preparing for a third treatment of 3,000 gal. before deepening to the Holt pay found on the north end of the North Cowden pool.

Attempting to extend the southern limits of the North Cowden pool 1½ miles to the southeast, thereby furthering the linking of the two pools, Richmond Drilling Co.'s No. 1 TXL, Section 19, Block 42, Township 1s, T.&P. Survey, was preparing to run electrical survey at a total depth of 4,500 ft. Core from 4,343 to 4,353 ft. showed slight porosity and oil stains but no heavy zone of saturation was found in the test.

Ordovician Activity

Oldson Drilling Co. and Bryce McCandless' No. 1 Virginia W. Crockett, Section 5, Block 110, H.&G.N. Survey, wildcat test 2 miles southwest of the Apco pool of northern Pecos County, was running 2-in. tubing to test after a 500-gal. acid treatment in lime from 4,384 to 4,446 ft., total depth. A previous drill-stem test of the section had shown 30 ft. of mud with slight showings of oil and gas in 50 minutes. The wildcat has been checked higher, structurally, than the Apco pool wells.

In Crockett County Continental Oil Co.'s No. 1 Todd (formerly No. 4 Todd), Section 30, Block WX, G.C.&S.F. Survey, was swabbing 2,400 ft. from the top of hole after plugging back to 6,780 ft. and running tubing to 6,770 ft. The test was plugged back from 7,010 ft. when sulfur water was found. It is reported to be still showing sulfur water.

WEST CENTRAL TEXAS

FORT WORTH, Tex., Jan. 1.—The holiday season, together with heavy snows, slowed the activity in West Central Texas to a minimum during the past week. Scattered reports from several closely watched tests led the development.

Third producer was in prospect for the recently discovered pool in northeastern Stephens County by Tom G. Shaw. Shaw's No. 3 Stroud, G. Newton Survey, north of the discovery, started flowing after it was drilled into saturation at 2,583-85 ft., total depth. Meanwhile operators are attempting to cement off water at the bottom of the hole in Shaw's No. 2 Stroud, also in the Newton Survey. No. 2 Stroud drilled saturation at 2,585-89 ft. to assure a location-west extension for the pool.

The Bowles pool on the Taylor and Callahan county line, rather inactive since the abandonment of several dry holes 2 weeks ago, is in line for more development as two of the pool's operators plan tests. Location for a new test by S. B. Roberts has been made in the NE¼ of Section 28, 1,280 ft. north of a 110-bbl. producer completed by the operator last month. Bradford & Robertson are planning a test on the Bowles acreage in the southwest part of Section 28. Ungren & Frazier have plans for another test in the pool after recently abandoning their north outpost at 1,950 ft.

Several closely watched tests in the Ivy pool of Shackelford County have been shut down until after the holidays. Clyde O. Eastus' No. 1 DeEtta Martin, on the northwest side of the pool, is indicating production from a new zone, the King sand. Considerable oil and gas was swabbed from the hole following a 20-qt. shot in the pay, however the test is shut down until after the first of the year.

W. F. Snebold and Tom Owens have shut down their deep outpost to the Ivy pool after indicating production from a lower zone in the Palo Pinto lime before the holidays. The test is bottomed at 3,290 ft. and has perforated casing from 3,205 to 3,228 ft. where saturation was drilled. Should production fail the test will plug back and attempt completion in the regular Palo Pinto lime pay drilled from 3,175 to 3,195 ft.

Two miles northeast of the Ivy pool Groover & Rose and Jones & Stasney have shut down their No. 1 Winnie Wendt at 3,199 ft. with no shows reported. Plans are to deepen another 50 ft. into the Strawn section in search of the Palo Pinto pay zone of the Ivy pool.

PANHANDLE COMPLETIONS

(24-hour gages)

Carson County

Magnolia Petroleum Co.'s No. 68 fee No. 224, 3,020-85 ft., 496 bbl.

Gray County

Humble Oil & Refining Co.'s No. 7 Haggard, 3,140-3,247 ft., 391 bbl. King Oil Co.'s No. 5 George Simpson, 3,220-77 ft., 533 bbl. Shell Oil Co., Inc.'s No. 9 Finley-Hoffman, 2,897-2,957 ft., 292 bbl. Stanolind Oil & Gas Co.'s No. 6 J. M. Saunders, 2,950-3,100 ft., 223 bbl.

Sherman County

Hagy, Harrington & Marsh's No. 1 W. Freeman, 2,776-2,895 ft., 14,900,000 cu. ft. of gas.

Wheeler County

Alma Oil Co.'s No. 2 Perkins-Cullum, 2,305-2,405 ft., 268 bbl.

Hutchinson County

McIlroy's No. 11 W. B. Haile, 2,995-3,046 ft., 751 bbl. Stanolind Oil & Gas Co.'s No. 17 W. B. Haile B, 3,035-70 ft., 54 bbl. Stanolind Oil & Gas Co.'s No. 18 W. B. Haile B, 3,009-43 ft., 53 bbl. Stanolind Oil & Gas Co.'s No. 15 Ware B, 3,017-3,122 ft., 249 bbl.

La.-Ark. Fields

(Continued from Page 57)

In La Salle Parish, the new deep wildcat, Hunt Oil Co. and Arkansas Fuel Oil Co.'s No. 1 Goodpine Lumber Co., after blowing out at 3,030 ft. and bridging at 1,200 ft., is shut down with the crew fishing at the total depth.

A new Bienville Parish wildcat, Harry Hanbury's No. 1 Holson, in Section 29-18-6, will begin drilling shortly. This test is a farmout from Standard Oil Co. of Louisiana.

ARKANSAS COMPLETIONS

Atlanta—Columbia County

Hunt Oil Co.'s No. 1 McWilliams, C NW NW Section 15-18-10, 480 bbl., ¼-in. choke, 6-in. casing at 8,236 ft., total depth 8,239 ft.

Big Creek—Columbia County

Standard Oil Co. of Louisiana's No. 1 Petty Stave Lumber Co., 660 ft. north and 735 ft. west of SE cor. Section 4-17-21, 4,100,000 cu. ft. of gas and 168 bbl. condensate, 7/32-in. choke, casing pressure 2,375 lb., tubing pressure 2,325 lb., 6-in. casing at 7,989 ft.; old total depth 7,999 ft.

Buckner—Columbia County

Standard Oil Co. of Louisiana's No. 1-B Nancy Johnson, SE SE Section 9-16-22, 552 bbl., open choke, casing pressure 195 lb., tubing pressure 50 lb., 2 per cent basic sediment, 6-in. casing at 7,269 ft., total depth 7,290 ft.

Dorcheat—Columbia County

Lion Oil Refining Co.'s No. 1 Warnock estate, C NW NW Section 15-18-22, 264 bbl., 13/64-in. choke, casing pressure 3,150 ft., tubing pressure 2,950 lb., total depth 9,020 ft., 5½-in. casing 9,007 ft.

Magnolia—Columbia County

Standard Oil Co. of Louisiana's No. 1-B Merritt unit, NE SE Section 16-17-20, 864 bbl., ¼-in. choke, casing pressure 1,200 lb., tubing pressure 1,240 lb., total depth 7,618 ft.

NORTH LOUISIANA COMPLETIONS

Bull Bayou—Sabine Parish

C. N. Tuttle's No. 2-A Wemple, Section 14-12-11, 50 bbl. of oil, pumping, total depth 2,699 ft.

Lisbon—Claiborne Parish

Oakes & Stendrup's No. 1 S. Lloyd, Section 10-20-5, 792 bbl., 16/64-in. choke, tubing pressure 200 lb., packer set in casing, total depth 5,343 ft., 5½-in. casing 5,330 ft.

EAST TEXAS BORDER COMPLETIONS

Smithland—Marion County

J. E. Reynolds' No. 4-B Terry estate, W. Coore Survey, pumping 14 bbl., sand at 2,473-75 ft., total depth 2,527 ft.

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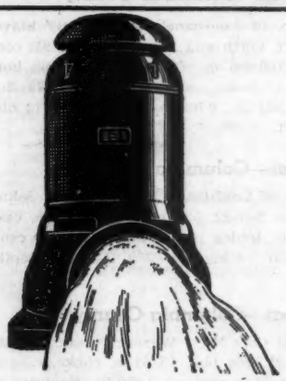

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Among the Drilling

RICHMOND DRILLING CO.'s wildcat test 1½ miles southeast of the North Cowden pool in Ector County, West Texas, is attracting considerable attention in the district. It is No. 1 TXL, Section 19, Block 42, Township 1s, T.&P. Survey. After recovering core from 4,343 to 4,353 ft. which showed slight porosity and oil stains, the test was last reported preparing to make an electrical survey at a total depth of 4,500 ft.

OLSON DRILLING CO., Tulsa, and Bryce McCandless' No. 1 V. W. Crockett, closely watched Ordovician wildcat test in Section 5, Block 110, H.&G.N. Survey, northern Pecos County, West Texas, is running 2-in. tubing to test after acidizing with 500 gal. a section from 4,384 to 4,393 ft., total depth. The test is about 2 miles southwest of the Apco pool and on previous tests had shown only slight stains of oil with drilling mud. It has been checked considerably higher, structurally, than producers in the Apco pool.

ROY GUFFEY, contractor, is moving in materials for Sun Oil Co.'s No. 1 Snuggs, east side of the Walnut Bend pool of Cooke County, North Texas. It will be a south offset to Magnolia Petroleum Co.'s No. 1 Ramsey, east-side producer. Sun Oil Co. is the fourth operator in the pool, it having been discovered by Sinclair Prairie Oil Co. and later entered by Magnolia Petroleum Co. and Cox & Hamon.

A. H. GRIDER, Mexia, Tex., has received contract for the deepening of an old test in Denton County, North Texas. Ed. Shotts, Fort Worth, has taken over the Gannon & Hughes' No. 1 Dr. Charles Saunders, S. Noling Survey No. 968, 1 mile south of the town of Bolivar, and plans to deepen. It was quit last fall at 1,500 ft.

SUPERIOR DRILLING CO. received contract for an 8,500-ft. Tertiary Wilcox test from the Atlantic Refining Co. The well is to be drilled on the Conwell lease, about 2½ miles west of Thomaston in De Witt County, Texas.

GEORGE ECHOLS is rigging up at the Allen dome, Brazoria County, for a projected 7,500-ft. flank test to be drilled on the Allen lease in the J. G. and G. W. McNell League. In Wharton County, Texas, another rotary is being moved to the Boling dome for No. 1 Keiner. Approximately 1 mile northeast of the South China field, Jefferson County, 5½-in. casing was cemented at 7,650 ft. in Hebert & Smith's No. 1 Guiterman. This well was drilled to a total depth of 8,000 ft. Sand showing oil and gas was logged at 7,491-7,520 ft.

MARTIN THOMPSON is drilling below 4,200 ft. in George Anderson's No. 1 Varuna Lawrence, a wildcat located northeast of the Cedar Point field in Chambers County, Texas. In the Almeda area, Harris County, No. 1 Alexander Sharp, a joint wildcat being drilled with John Mayo, is nearing contract depth of 6,500 ft., and the hole is expected to be abandoned as salt-water sand was logged in the Frio formation.

JACK FRAZIER'S joint wildcat drilled with John Mayo in the Juliff area, Brazoria County, Texas, was abandoned at a total depth of 9,150 ft., and the rotary is being moved to Fort Bend County for Ray N. Ranger's No. 1 Sugarland Industries, a projected 8,000-ft. wildcat located in the Wiley Martin Survey.

HOUSH & THOMPSON'S No. 1 Industrial Lumber Co., a wildcat located on the Ten Mile prospect, Allen Parish, coastal Louisiana, is drilling below 9,300 ft.

HARRY L. EDWARDS DRILLING Co. is coring for the pay in Fred Browning's No. 1 Socha located about ½ mile southwest of the discovery well of the Rosenberg field in Fort Bend County, Texas.

ALLEN & MORRIS are completing Coronado Corp.'s No. 18 Rooke at the La Rosa field, Refugio County, Texas, after cementing a production string of casing at 6,345 ft. In Nueces County, Illinois Petroleum Co.'s No. 1 Meinholdt, a wildcat test, is drilling in shale below 3,800 ft.

SPRINGROSE DRILLING CO., Wichita, Kans., have been drilling No. 1 Joe Swanson, a wildcat in the C N½ NW NW Section 18-20-5w, 3 miles north of production in the Bornholdt pool of McPherson County, Kansas. Operators have been bailing hole preparatory to drilling out cement plug to test the chat, which was topped at 3,304 ft. Prior to cementing casing, bottom-hole cuttings showed saturation to 3,319 ft., total depth.

PARKER DRILLING CO.'s No. 1-A King, in NE cor. SW¼ Section 2-11-8e, in the Dill pool, in Okfuskee County, Oklahoma, drilled to a total depth of 3,400 ft. and the crew has been running casing.

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OSAGE DRILLING CO.'s No. 2 Clawater, Section 766, Block D, Gibson Survey, on the north edge of Denver pool, Yoakum County, Texas, was reported completed for potential of 1,144 bbl. of oil daily after treatment with 6,000 gal. of acid.

WAITE DRILLING CO. and Kirkham & Jones at No. 1 Holbert, in NE cor. Section 25-14-10e, near Edna, in Creek County, Oklahoma, are setting 8-in. casing through the Glenn at 2,100 ft.

WARREN & BRADSHAW, drilling contractors, Tulsa, are preparing to drill at Dunnett's No. 1 Rodgers, in NE SE SW Section 31-11-4, Shawnee pool, Pottawatomie County, Oklahoma, a west offset to the No. 1 McDaniel.

H. B. OWNBY DRILLING CO. last week completed its No. 8 White in the Fairbanks field, Harris County, Texas, for 124 bbl. through a ⅛-in. choke from sand 6,826-52 ft.

BIG CHIEF DRILLING CO. topped the Simpson dolomite at 3,751 ft. and has been drilling below 3,814 ft. with 100 ft. of oil in the hole at No. 1 Collins, SE SW Section 12-6-5e, in the Grayson pool, Seminole County, Oklahoma.

REDMAN OIL CO., 123 Federal Square Building, Grand Rapids. Mich., is starting two new tests, one for itself and one contract job. The contract calls for the drilling of the Transwestern Oil Co.'s No. 1 W. O. Tobias, NW NW NW Section 12-2n-9w, Barry County, Michigan. The company well is the No. 1 Consumers Power Co., NE NE SW Section 29-7n-12w, Kent County, Michigan.

MURRAY & GRIFFEY Drilling Co., Tulsa, is drilling a well for W. H. Atkinson and C. & R. Drilling Co. at No. 1 Wilkerson, in NW NE NW of Section 14-22-4e, wildcat northwest of Pawnee, in Pawnee County, Oklahoma, on acreage farmed out by Carter Oil Co. Drilling is proceeding below 3,000 ft.

OLSON DRILLING CO.'s No. 1 Scritchfield, in NW NE SE Section 4-12-3w, in the South Britton area, in Oklahoma County, Oklahoma, has been drilling at 5,977 ft. with the Viola lime expected around 6,500 ft. This company has also been drilling No. 2-A Rigney, in NE SE NW Section 12-5-9w, in the Cement field of Caddo County, Oklahoma, now at total depth of 3,185 ft.

ROWAN & HOPE of San Antonio. Tex., have the contract for drilling H. C. Cummings and others' No. 1 T. H. Morrisey, a Warren County, Mississippi, wildcat. Operations are scheduled to begin this week.

SIMPSON - ROODHOUSE Drilling Co., Ada, and others' No. 1 Bond, in SW SE SE Section 9-53e, near Chism, in McClain County, Oklahoma, was rigging up rotary tools.

SUMMIT DRILLING CO.'s No. 1 Campbell, SE NE SE Section 24-10-7, Seminole County, Oklahoma, is bailing to drill plugs at plugged-back depth of 1,665 ft.

Drilling crew near Fairfield, Ill.: J. H. Bond, driller; L. R. Dreveskracht, geologist: A. Ainsworth, contractor; Ralph Schuyler, roughneck; Walter Maylind, roughneck

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Michigan Field Report

By O. C. PRESSPRICH

Michigan Production in '39 Established a State Record

SAGINAW, Mich., Jan. 2.—Paced by a Clare County well producing naturally at a rate of nearly 3,000 bbl. a day, the last week of 1939 in Michigan oil fields closed with a burst of activity that added 20 new oil wells and 2 new gas wells to the state's total, contributing 7,100 bbl. of oil to the potential daily yield, and forecasting, on the basis of new drilling permits, a continuance of the increased operations through the early months of 1940.

Predictions of state official sources, that, with the exception of the Kent-Ottawa field, production of known fields appears to have reached its peak in Michigan, and that Michigan refineries face a shortage of crude unless new fields are discovered, spurred operators to search for new sources of supply. Permits issued last week totaled 39, offsetting the week's list of 36 completions, which included 14 drilling wells abandoned as failures.

An unofficial forecast of another 2,000,000-bbl. month for December indicates Michigan's 1939 oil production will attain the record total of 23,500,000 bbl., with 7 months of the year bringing yields of better than 2,000,000 bbl. The fact that strict state proration has been enforced since August prevented a production total that oil men believe would have added another 2,000,000 bbl. or so to the year's figure.

Although Clare's Redding field, with two big wells, contributed more than half of the increase in potential last week, activity was concentrated as usual in the southwestern counties, the Kent-Ottawa district in particular. That section, now the state's leading field, recorded 12 of the 20 oil completions and was the scene of five dry holes and two abandoned locations.

Two of the Ottawa tests were good wells and one in Kent's Walker Township was good for 500 bbl. a day. The yield from the others in the district ranged from 5 to 168 bbl. a day. Two small producers were completed in Allegan County, but for the first time in many weeks the dwindling Van Buren activity was at such an ebb that not a single completion took place there.

Among wildcat failures was one in Saginaw County's Lakefield Township where Robert Bond abandoned a test in Section 1, at 3,190 ft. Other failures included one in Section 20 of Montcalm County's Pine Township, another in Comstock Township of Kalamazoo County, another in Berrien's Watervliet.

Pure's big well, the No. 13-B J. S. Bicknell, is in Section 28 of Redding, 19n-6w. Completed at 3,879 ft., the gage showed an initial flow for several hours at the rate of 124 bbl. an hour. Arenac Township, John R. Ress' No. 2 Southworth, in Section 15, was good for 9,087,000 cu. ft. of gas a day. Another gas well, flowing 5,500,000 cu. ft., is Lang & Lewis' No. 1 Farquer, in Section 32, of Gratiot County, completed in the Michigan stray sand at 968 ft.

Featuring southwestern production was Twin Drilling Co.'s No. 1-B McKay, in Section 24, of Ottawa's Tallmadge, 7n-13w, which was acid-treated for an initial production of 1,000 bbl. a day. Smith Petroleum Co.'s No. 2 Heyboer, in Section 25, was good for 600 bbl. All the new Kent County wells are in the proven area.

In the new permits were five Redding locations for wells to be drilled by Pure Oil Co., eight locations listed in Allegan County, five in Kent, seven more in Ottawa's Tallmadge field, four in Van Buren, four in Monroe, one each in Newaygo, Ogemaw, Kalamazoo, and Gladwin counties.

Following is a summary of last week's Michigan completions:

Allegan County

Ganges Township (2n-16w)—Blood & Hendershott's No. 2 Knox, NE SW NW Section 4, dry and abandoned at 1,350 ft.

Hopkins Township (3n-12w)—Claude Sutherland abandoned No. 1 Waldo Ellinger, NW NE NE Section 19, at 1,578 ft.

Salem Township (4n-13w)—Socony-Vacuum Oil Co., Inc.'s No. 2 Fien-Wiest, SE SE NW Section 2, acidized at 1,679 ft., produced at the rate of 60 bbl. a day. Gordon Oil Co.'s No. 3 George Weber, NW NW NW Section 10, rated 64 bbl. a day, after acid treatment, total depth 1,679 ft. Muskegon Oil Corp.'s No. 1 J. Schumaker estate, SW SE NW Section 12, was dry and abandoned at 2,870 ft.

Arenac County

Clayton Township (20n-4e)—Gratiot Oil & Gas Operations' No. 2 Peavy, SE SE NE Section 9, produced 125 bbl. a day after it was acidized at a total depth of 2,609 ft. John S. Ress completed No. 2 E. Southworth, NE NW NE Section 15, as a gas well producing 9,087,000 cu. ft. a day at 1,233 ft. Hal-Be-Oyle & Gas Corp.'s No. 1 Steve Kozma, SW SW NW Section 30, failed as an oil test, and was abandoned at 2,870 ft.

Berrien County

Watervliet Township (3s-17w)—Henry Ostrander, trustee's No. 1 William Brooks, SE NE NW Section 1, was abandoned as dry at 1,048 ft.

Clare County

Redding Township (19n-6w)—Pure Oil Co.'s No. 13-B J. S. Bicknell, C N½ SW NW Section 28, rated 2,976 bbl. naturally. It was completed at 3,789 ft. American Drilling Co.'s No. 8 Ida B. Newcomer, C N½ SE NE Section 32, completed at 3,896 ft., rated 740 bbl. a day, naturally.

Gratiot County

Sumner Township (11n-14w)—Lang & Lewis, Inc.'s No. 1 Farquer and others, C SE¼ Section 32, a gas well, was good for 5,500,000 cu. ft. a day at 968 ft.

Isabella County

Wise Township (16n-3w)—J. V. Wicklund Development Co.'s No. 1 W. Haley, NW SW NW Section 16, comupleted at 3,712 ft., was acid-treated to get production of 45 bbl. a day. Turner Petroleum Corp.'s No. 1 E. Menery, SE SE SW Section 21, rated 192 bbl. a day after acid treating at 3,711 ft.

Kalamazoo County

Comstock Township (2s-10w)—Smith Petroleum Co.'s No. 1 F. C. Taylor, C W½ NW SE Section 33, was a wildcat failure, abandoned at 1,381 ft.

Kent County

Barone Township (5n-9w)—Smith Petroleum Co. abandoned a wildcat, No. 1 Christ Weigele, NW NW SW Section 23, dry at 2,167 ft.

Walker Township (7n-12w)—Smith Petroleum Co. completed No. 4 J. F. Cudahy and others, NE SE NW Section 33, at 1,902 ft., getting 40 bbl. a day after acidizing the well. James E. Flanigan's No. 1 John B. Martin, NW SW NW Section 35, was dry and abandoned at 1,930 ft. Certain-Teed Products Corp.'s No. 8 fee, W½ NE SE Section 33, acidized at 1,930 ft., was good for 145 bbl. a day. Fisher-McCall and others completed three wells in Section 29, tests. No. 2 Bultema, NE NE NW, rated 150 bbl. after it was acidized at 1,898 ft., No. 4 Sam Newhouse, SW NE NW, had after-acid initial of 120 bbl. a day at 1,898 ft., and No. 5 Newhouse, NW NE NW, completed at 1,903 ft., also was good for 120 bbl. a day after getting acid treatment. Best of the Walker wells was Red-Man Oil Co.'s No. 1 Consumers Power Co. and others, NE NE SW Section 29, which was rated at 500 bbl. a day, acid treated and completed at 1,884 ft.

Wyoming Township (6n-12w)—Hogan Brothers' No. 2 Alabastine Co., SE NW NW Section 2, was abandoned as dry at 1,842 ft. H. C. Williams' No. 1 Grand Rapids Trust Co., SE SW SW Section 5, completed at 1,797 ft., was good for only 5 bbl. a day, despite acidization, and Lamar Oil Co.'s No. 5 Grand Rapids Gravel Co., NW SE SW Section 4, yielded 35 bbl. a day after it was treated with acid at 1,777 ft.

Monroe County

Dundee Township (6s-6e)—A dry hole and a small producer chilled interest in the Dundee pool. The failure was A. V. Oil & Gas Co.'s No. 1 Leland Palmer, SE SW NE Section 10, abandoned at 2,135 ft. W. C. Harri and F. L. Davis' No. 1 Lamont Bragg, SE SW NW Section 30, yielded 10 bbl. a day after an acid shot at 2,131 ft.

Montcalm County

Pine Township (11n-8w)—H. L. Gentry Engineering Co.'s No. 2 Hans Christianson, S½ SE SE Section 20, was dry and abandoned at 3,380 ft.

Ottawa County

Jamestown Township (5n-13w)—Freeman Oil Co.'s No. 1 A. H. Lanning, SE NW SW Section 30, was abandoned at 1,658 ft.

Polton Township (8n-14w)—Lowry & Mapes abandoned No. 1 Peter Venama, NE NE SE Section 7, at 2,087 ft.

Tallmadge Township (7n-13w)—Two locations, No. 1 R. H. Dickerson, NE NW SW, and No. 1 Guy Courtwright, NE SW SW, both in Section 12, were abandoned by Sprenger Brothers. Twin Drilling Co.'s No. 1-B McKay, SE SW SW Section 24, was good for 1,000 bbl. a day after an acid treatment. In Section 25 Welsh Oil Co.'s No. 1 Stephen Kuiper, SE SW SW, was turned into a 50-bbl. producer at 1,925 ft., as the result of an acid treatment. Smith Petroleum Co.'s No. 2 Adrian Heyboer, NW SW NE, completed at 1,872 ft., was good for 600 bbl. a day after acid, while George Kernodle's No. 2 Joe Snip, NE SE NW, was acidized to get 168 bbl. a day at 1,872 ft.

Saginaw County

Lakefield Township (11n-1e)—Robert Bond's No. 1 A. Sweeney, NW SE NE Section 1, was dry and abandoned at 3,190 ft.

Southwest Texas Fields

(Continued from Page 56)

Kellogg, perforated casing 5,647-66 ft., 124 bbl., 7/64-in. choke.

Starr County

Rincon field: W. R. Davis' No. 4-B Slick, perforated casing 4,180-85 ft., 22 bbl., ¼-in. choke.

Webb County

Adami field: Arkansas Fuel Oil Co.'s No. 1-A Adami, sand 977½-86 ft., 47 bbl., pumping. Bridwell Employes Oil Co.'s No. 3 Adami, sand 1,002-06 ft., 32 bbl., pumping. Red Bank Oil Co.'s No. 6 Adami, sand 1,000½-07 ft., 36 bbl., 12 hours, pumping. Volpe field: Magnolia Petroleum Co.'s No. 14 Volpe-Benavides, sand 2,452-62 ft., 50 bbl., pumping. Magnolia Petroleum Co.'s No. 15 Volpe, sand 2,455-65 ft., 50 bbl., pumping. West Cole field: V. G. Schimmel's No. 4-A Benavides, sand 2,317-39 ft., 40 bbl., pumping.

Zapata County

Mirando Valley field: Buffalo Oil Co.'s No. 22-C Hinnant, sand 1,935-47 ft., 82 bbl., ⅝-in. choke.

North and East Texas

By D. H. STORMONT

New Pools in Montague and Clay; Wildcatters Are Active

WICHITA FALLS, Tex., Jan. 1.—Discovery of two new oil pools in the North Texas district, one each in Montague and Clay counties, marked one of the most fruitful weeks of the year in the exploratory campaign throughout the northern tier of Texas counties. Montague County is getting the second Simpson, Middle Ordovician, oil pool in North Texas while Clay County's discovery is another Strawn-sand pool in the extreme south end of the established trend through the southwestern quarter of the county.

As the new year starts, little letup is seen in the intense wildcatting campaign throughout almost every county in North Texas during the past year. Stimulated by the great number, and in some cases the significant magnitude, of the past year's discoveries, wildcatting is expected to reach even a higher pitch during the coming months.

Montague County's pool indicator, Continental Oil Co.'s No. 1 J. T. Brown, G. E. Nabours Survey, Abstract 1416, 5 miles north of Bowie, found increasing shows of oil and gas as it deepened into the Simpson formation. The first test to find the Simpson section in North Texas outside of the deep wells in the Walnut Bend pool of Cooke County, some 70 miles to the northeast, it is the deepest test ever drilled in the district. With a total depth of 6,904 ft. showings of oil and gas, together with wash water, were recovered by swabbing. The company is preparing to acidize with 8,000 gal. from 6,850 to 6,868 ft.

Several Shows in Bend

Several shows of oil had been found in the Bend section of basal Pennsylvanian between 6,000 and 6,400 ft. Discovery of the Simpson section in this part of North Texas has created great interest among oil men and geologists. Tests generally pass from the Bend into the Ellenburger of Lower Ordovician.

Clay County's pool opener is Shell Oil Co., Inc.'s No. 1 Henderson, 990 ft. from the north and 1,250 ft. from the west lines of Block 2605, T.E.&L. Survey, extreme southwestern corner of the county, and about 7 miles southeast of Windthorst in eastern Archer County. The pool opener is also about 10 miles southwest of the Burns pool. On a drill-stem test in sand from 3,419 to 3,432 ft., the total depth, 2,700 ft. of oil was recovered in 20 minutes. Bottom-hole pressure registered 1,200 lb. The wildcat sprayed oil while pulling drill pipe and after the pipe was out of the hole it sprayed over the top of the derrick. The company plans to drill about 200 ft. deeper, then set casing above the shows, and test.

Shell acquired the approximate 3,200-acre block, embracing the discovery, shortly after the opening of the Burns pool early in 1939. As high as $25 per acre was paid for some of the tracts. Offsetting Shell's block to the southeast is a block of several thousand acres held by Gulf Oil Corp. and extending across the Clay County line into Jack County.

In the Burns pool of Clay County, L. T. (Bobby) Burns' No. 3 Browning, Block 94, Belcher Survey, was preparing to drill plug from casing cemented at 4,432 ft. after drilling sand from that depth to 4,474 ft. It is a north offset to the discovery well. Burns has completed No. 1 Pickett, ¼ mile northwest of the pool discovery, for 20 bbl. daily for the smallest potential of any of Clay County's recent deep discoveries. Each of Burns' two wells in the pool proper is good for more than 1,000 bbl. a day. Burns' No. 4 Browning, Block 70, northeast offset to the discovery, has set surface casing.

Montague County's deep discovery in the Rogers & Rogers pool last week has been gaged at 80 bbl. hourly, or 1,920 bbl. daily. The well, Stanolind Oil & Gas Co.'s No. 2 Kate Davis, W. J. Wells Survey, Abstract 844, on the northwest side of the pool, gave the area its third and deepest producing horizon, the level being in the Smithwick lime of the Bend series. Pay section was in a conglomerate from 5,228 to 5,244 ft. The producer was dry in both the 4,300 and the 4,600-ft. pays of the pool and has indicated the most prolific level for the area.

Cooke County's pool opener of last week, Big Indian Oil & Development Co.'s No. 1 M. P. Morton, Section 1, E.T. Survey, 5 miles southeast of Gainesville, has been estimated at 25 bbl. daily, pumping. Pay was drilled from 2,509 to 2,517 ft. A small amount of bottom-hole water is showing and the operator has indicated that the well might be plugged back several feet in an attempt to shut it off.

Spudding of a new wildcat test and two extension producers in the Green pool were reported from Baylor County. William P. Staton and Howard P. Bunch, both of Wichita Falls, have set surface casing at No. 1 Robertson County School Lands, a 3,500-ft. rotary test in the northeastern part of Block 10, Staton subdivision, 14 miles east of Seymour. A ¼-mile north extension to the Green pool on the west side of production was indicated in British American Oil Co.'s No. 1 R. E. Fowlkes, SE NW Section 215, T.&N.O. Survey. Canyon lime with saturation was drilled at 2,558-60 ft. Quarter-mile south of production the same company's No. 2 Seals, NE SW Section 215, was estimated at 215 bbl. daily from Canyon lime drilled from 2,578 to 2,583 ft. The company has one test drilling in the area.

One of the few abandonments for the yet undefined Hull-Silk pool of Archer County was reported at the L. T. (Bobby) Burns' No. 1 Wilmot, SE cor. G. N. Smith Survey, Abstract 393, extreme northwest corner of the pool. After logging salt water at 4,396 ft. the test was plugged back to test showings from 4,075 to 4,334 ft., but to no avail. It is being plugged.

In Wilbarger County's Consolidated area, Consolidated Oil Co. and Texas Eastern Oil Co.'s No. 1-K Ancell, Section 2, Block 7, H.&T.C. Survey, has been completed for 1,088 bbl. daily from pay at 3,762-80 ft. This is the shallowest of the two producing horizons in the area and extends the pool ½ mile to the southeast. Prospects for a 2-mile west extension faded when King Oil Co.'s No. 1-U Waggoner, NE part of Section 5, Block 17, H.&T.C. Survey, passed up showings as uncommercial at about 4,050 ft. New contract depth of the test is the Ellenburger of Lower Ordovician and it is drilling below 4,300 ft.

NORTH TEXAS COMPLETIONS

Archer County

Blackwell Oil & Gas Co.'s No. 1 L. F. Wilson McCrory, 4,295-4,325 ft., 1,375 bbl. C. B. Christie and others' No. 2 Dr. J. A. Little B, 4,327-56 ft., 1,370 bbl. B. M. Hester & Son's No. 2 W. T. Finlay, 4,278-4,308 ft., 850 bbl. King Oil Co.'s No. 8 M. E. Rogers, 1,261-80 ft., 15 bbl. Bert L. Ligon and others' No. 3 L. F. Wilson C, 3,855-65 ft., 1,776 bbl. Shappell Oil Co.'s No. 6 J. L. Jackson D, 666-77 ft., 20 bbl. Shell Oil Co., Inc.'s No. 6 E. Colgan, 1,440-56 ft., 75 bbl.

Baylor County

British American Oil Producing Co.'s No. 2 G. Seals, 2,568-83 ft., 700 bbl.

Clay County

E. N. Costley and others' No. 3 C. T. Taylor C, 1,053-90 ft., 275 bbl. E. N. Costley and others' No. 2 C. T. Taylor D, 1,070-75 ft., 237 bbl. D. Gerard's No. 2 Mrs. E. A. Glasgow, 260 ft., dry.

Cooke County

Bridwell Oil Co.'s No. 1 J. Flusche B, 775-93 ft., 90 bbl. Bridwell Oil Co.'s No. 13 J. R. Parkey, 705-25 ft., 13 bbl. Cox & Hamon's No. 4 K. Neu A, 4,945-83 ft., 510 bbl. Cox & Hamon's No. 9 K. Neu B, 4,655-68 ft., 700 bbl.

Jack County

Hanlon-Buchanan, Inc.'s No. 2 S. M. Garrison, 3,508 ft., dry. J. S. Page's No. 1 Mrs. M. E. Edwards, 340 ft., dry. Target Drilling Co.'s No. 1 A. B. Kuykendall, 3,183-3,203 ft., 377 bbl.

Montague County

Grimes, Feagin and others' No. 1 W. L. Admire, 4,520 ft., dry. Stanolind Oil & Gas Co.'s No. 2 Kate Davis, 5,223-49 ft., 1,920 bbl.

Wichita County

C. F. Schram's No. 1 J. H. Meyers, 1,235 ft., dry. Underwood Oil Co.'s No. 1 W. P. Rogers, 1,200-06 ft., 25 bbl. Underwood Oil Co.'s No. 2 W. P. Rogers, 1,198-1,206 ft., 25 bbl. Underwood Oil Co.'s No. 3 W. P. Rogers, 1,197-1,207 ft., 28 bbl. Underwood Oil Co.'s No. 4 W. P. Rogers, 1,202-11 ft., 18 bbl. Bridwell Oil Co.'s No. 1 F. L. Cone, 4,404 ft., dry. Cochran & Cain's No. 2 D. R. Preston, 3,930-59 ft., 432 bbl. Consolidated Oil Co.'s No. 8 Mrs. J. L. James, 3,943-4,002 ft., 1,200 bbl. E.C. Oil Co.'s No. 20 Mrs. Anna Mangold, 3,770-3,857 ft., 710 bbl. E.C. Oil Co.'s No. 3-A Anna Mangold, 3,768-3,866 ft., 465 bbl. Fain McGaha Oil Corp.'s No. 13 E. P. Griffin B, 3,803-33 ft., 1,040 bbl. J. E. Farrell's No. 28 Waggoner C, 3,805-60 ft., 800 bbl. Felty & Harwell's No. 1-A Lilly Hooks, 200 ft., dry. Granite Oil Trust's No. 4 N. H. Martin, 3,730-3,840 ft., 665 bbl. W. H. Hammon's No. 6 W. H. Hammon, 3,974-4,048 ft., 952 bbl. W. H. Hammon's No. 4 Sue Mitchell C, 3,802-89 ft., 1,080 bbl. Hammon, Hanlon-Buchanan, Inc.'s No. 7 W. H. Hammon, 3,968-4,062 ft., 1,016 bbl. Iowa Payne Oil Co.'s No. 2 Fred Thom, 3,767-3,826 ft., 1,260 bbl. King Oil Co.'s No. 8 W. T. Waggoner R, 1,590-1,640 ft., 80 bbl. W. H. Peckham's No. 3 M. A. Love, 4,040-95 ft., 768 bbl. George Proctor's No. 43 Ed Foster A, 905-20 ft., 33 bbl. George Proctor's No. 44 Ed Foster A, 1,682-1,702 ft., 115 bbl. Tide Water and others' No. 17 Charles Pettit, 3,752-3,820 ft., 816 bbl.

Wilbarger County

Consolidated Oil Co.'s No. 1 G. B. Ancell K, 3,762-80 ft., 1,080 bbl. Consolidated Oil Co.'s No. 1 Waggoner EE, 1,875 ft., dry. Falls Refining Co.'s No. 6 Mrs. J. L. Owens, 3,192-3,207 ft., 126 bbl. King Oil Co.'s No. 7 R. L. Castleberry, 3,208-30 ft., 1,040 bbl. J. A. Wood's No. 3 Mrs. Mary Womack, 3,766-72 ft., 1,128 bbl.

Young County

B. C. Gilmore's No. 1 R. L. Watson, 543-53 ft., 36 bbl. E. W. Hunt's No. 3 H. M. Goss and others' 1,218-33 ft., 56 bbl. E. W. Hunt's No. 4 H. M. Goss and others, 1,219-28 ft., 27 bbl. L. A Long's No. 2 King and others, 251 ft., dry.

EASTERN TEXAS

DALLAS, Tex., Jan. 1.—Shell Oil Co., Inc., has recontracted its No. 1 George E. Dorsey, N. Salias Survey, Abstract 77, on the Percilla structure of northern Houston County, and will carry the wildcat to an indefinite depth. Originally contracted to 9,800 ft., the unexpected top of the Glen Rose section is believed the cause of the deeper contract depth. The test topped the massive anhydrite at 9,674 ft. and drilled a 132-ft. section to 1,802 ft. The top was considerably lower and the section considerably thinner than expected. Hard sand with no showings was found at 9,817 ft. and the test is drilling below that depth.

In Smith County both Shell Oil Co., Inc., and Sun Oil Co. continue to drill at their outposts to the discovery

(Continued on Page 78)

Kansas Developments

By
DAL DALRYMPLE

Outpost North of Bornholdt Pool Finds Chat Production

A new producing area was uncovered in McPherson County, pools in Ellsworth, Barton, and Stafford counties were extended, a 5,860-bbl. well was completed in the Hittle field and several large producers were finaled in the West Marchand, South Burnett, and other pools. Field operations generally in Kansas were greatly curtailed during the holidays, however, and wildcat activity was almost at a standstill. Exploration for new reserves was expected to be resumed on an increasing scale soon after the turn of the year.

Springrose Drilling Co. and others' No. 1 Swanson, C N½ NW NW Section 18-20-5w, wildcat 2½ miles north of the Bornholdt pool in McPherson County, evidently has opened a chat pool that eventually may prove to be a long extension of the Bornholdt area. The chat was found high at 3,304 ft. and was penetrated to 3,342 ft., total depth. It was reported to have made one flow and cleaned itself, but no gauge of production was made. Tanks were being erected preparatory to testing. Oil rose 900 ft. in the hole in 4 hours after drilling plug to 3,320 ft. and before deepening.

The Zenith field in Stafford County was extended ¼ mile northward at Phillips Petroleum Co.'s No. 1 Tretbar, CSL SE NW Section 12-24-11w. It made potential of 453 bbl. of oil daily at 3,738 ft. in Misener sand. Deep Rock Oil Corp.'s No. 1 Turner, C S½ SW SW Section 2-24-11w, farthest north test in the field, was drilling below 3,245 ft., expecting the Misener. One-half mile west of the Zenith field, A. M. Landon and W. G. Estes' No. 1 Equitable, NE NE NE Section 15-24-11w, found some oil in Misener sand, was reported to have flowed from 35 to 75 bbl. of oil from Viola lime at 3,815 ft. before being killed, and tubing was being run preparatory to acidizing.

Hershey, Ash & Crown Petroleum Co.'s No. 1 Ernsting, CWL NE SE Section 1-20-12w, gave promise of extending the Wolf pool, Barton County, about ¾ mile southward. Oil rose 700 ft. in the hole in 7 hours after drilling Arbuckle lime to 3,375 ft. Five-inch casing was set at 3,340 ft. preparatory to testing.

Barton County

Stanolind Oil & Gas Co.'s No. 4 Thomas, C SW¼ Section 35-19-11w, Silica field, Barton County, drilled Arbuckle lime at 3,288-3,307 ft., total depth, swabbed 23 bbl. of oil an hour and was completed for depthograph potential of 1,160 bbl.

Same company's No. 14 Stueckemann, SE NE SW Section 11-20-11w, South Silica area, pumped 124 bbl. of oil in 8 hours and made daily potential of 374 bbl. Production was from Arbuckle lime found at 3,289-94 ft., total depth.

Shell Oil Co., Inc.'s No. 11-B Schneider, SW SE NW Section 1-16-14w, South Trapp area, topped Arbuckle lime at 3,277 ft., was bottomed at 3,294 ft., acidized and swabbed 136 bbl. of oil in 4 hours, making depthograph potential of 3,120 bbl. of oil, cutting 29 per cent water.

Max Cohen and others' No. 2 Gage, C W½ E½ NW Section 2-17-13w, Ainsworth pool, topped Lansing lime at 3,085 ft., Arbuckle lime at 3,338 ft., and was dry and abandoned at 3,350 ft., total depth.

Gulf Oil Corp.'s No. 2-B Spanier, SW cor. Section 12-20-11w, Silica field, found Arbuckle lime at 3,267-84 ft., total depth, pumped 60 bbl. of oil in 8 hours, and made daily potential of 181 bbl.

Continental Oil Co.'s No. 1 Scheufler, NW cor. Section 24-20-12w, West Marchand area, pumped 122 bbl. of oil in 3 hours, was acidized, made depthograph potential of 13,843 bbl., and was completed for maximum-allowable potential of 3,000 bbl.

Gulf Oil Corp.'s No. 1 Rieman, E½ SE SE Section 33-16-11w, South Prusa pool, had Arbuckle lime at 3,376-85 ft., total depth 3,397 ft., pumped 26 bbl. of oil and 2 bbl. of water in 8 hours, making potential of 79 bbl. of oil, with 64 bbl. of water daily.

Stanolind Oil & Gas Co.'s No. 22 Panning, C N½ NW SE Section 10-20-11w, was a location.

Ohio Oil Co.'s No. 1 Kramer, SW SW SE Section 9-16-13w, Susank area, an old well bottomed at 3,379½ ft., where it originally was completed for potential of 321 bbl. of oil, with 190 bbl. of water, was deepened to 3,545 ft. and recompleted for water-disposal well.

Rice County

Shell Oil Co., Inc.'s No. 2 Reese, NE NW NE Section 22-19-9w, Cramm area, Rice County, was completed for depthograph potential of 1,171 bbl. of oil daily after swabbing 211 bbl. in 8 hours. Production was from Arbuckle lime at 3,245-51 ft., total depth.

Gulf Oil Corp.'s No. 2 Drake, NW NW SW Section 31-20-7w, Wherry field, flowed 699 bbl. of oil in 8 hours from conglomerate, and was completed for daily potential of 2,096 bbl. of oil, with 30 bbl. of water. It was bottomed at 3,328 ft.

Mid-Plains Oil Co.'s No. 2 Engelland, N½ NW SE Section 15-21-7w, total depth 3,395 ft., pumped 97 bbl. of oil from conglomerate in 8 hours and made 24-hour potential of 291 bbl.

Skelly Oil Co.'s No. 2 Ira, S½ SE NW Section 27-19-10w, Silica field, found Lansing lime at 3,000-3,110 ft., total depth 3,216 ft., plugged back to 2,938 ft., and produced 9,700,000 cu. ft. of gas daily.

Continental Oil Co.'s No. 4 Johnson, SW SE SW Section 12-18-8w, Geneseo field, had Arbuckle lime at 3,192-3,234 ft., total depth, and was completed for maximum-allowable potential of 3,000 bbl. of oil daily.

C. L. Carlock's No. 2 Renollet, NW NW SE Section 36-20-8w, was rigging up rotary. Saco Oil Co.'s No. 1 Hohl, C E½ SE NW Section 12-18-10w, was rigging up cable tools.

Estimated Daily Production

Estimated daily production for Kansas for the week ended December 30, and for the preceding week, was as follows:

	Barrels	
	Dec. 30	Dec. 23
Oxford City	750	800
Burrton	10,150	10,250
Ritz-Canton	4,350	4,250
Graber	3,300	3,300
Hollow-Nikkel	1,900	1,950
Lerado	1,200	1,100
Voshell	1,650	1,700
Wellington	2,100	2,050
Ellsworth County:		
Lorraine	2,000	1,850
Other pools	2,125	2,260
Rice-Barton counties:		
Bloomer	4,800	5,200
Chase	4,700	5,100
Geneseo	3,900	3,850
Raymond	700	600
Silica	10,900	12,350
South Silica	3,000	3,150
Keesling	1,000	1,150
Wherry	4,500	3,900
Miscellaneous Rice	5,165	5,085
Miscellaneous Barton	10,815	9,855
Russell County	29,910	28,055
Sedgwick County	3,300	3,350
Ellis County:		
Bemis	7,150	6,150
Miscellaneous	4,230	6,135
Kingman County	920	1,000
Stafford County	5,525	7,735
Greenwood County	8,500	8,550
El Dorado	7,750	7,700
Other fields	32,310	35,325
Total Kansas	178,600	183,750

Cowley County

Texas Co.'s No. 6 Goodrich, NE SW SE Section 21-31-4, Hittle pool, Cowley County, found Arbuckle lime at 3,284-93 ft., total depth. It pumped and flowed 1,954 bbl. of oil in 8 hours, making 24-hour potential of 5,861 bbl.

Western Kansas Oil & Refining Co.'s No. 5 Ferguson, SE NE SW Section 21-30-8, West Ferguson pool, pumped 35 bbl. of oil daily and was completed in Lansing-Kansas City lime at 2,173-92 ft., total depth.

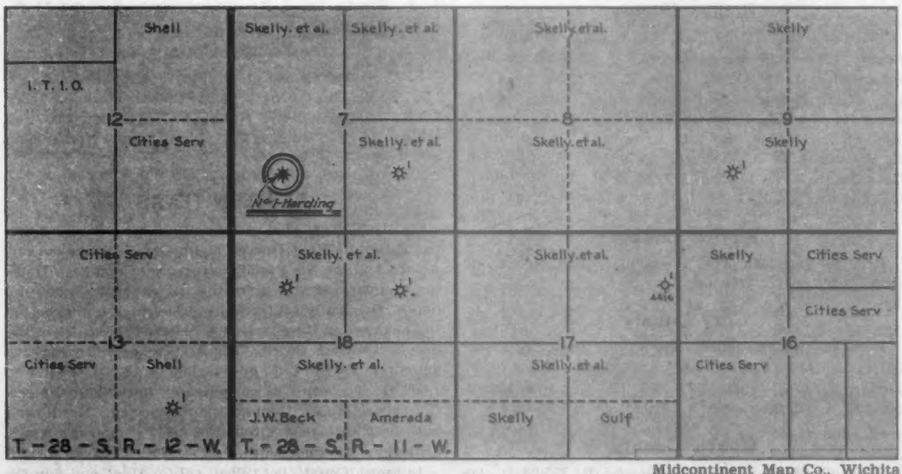
Barnsdall Oil Co. and others' No. 1 Sanford, SE SE SW Section 28-30-4, Darien area, topped Arbuckle lime at 3,324 ft., and was dry and abandoned at 3,328 ft., total depth.

Texas Co.'s No. 3 Ross, NW SE SE Section 21-31-4, was building rotary rig.

Ellis County

Cities Service Oil Co.'s No. 6 Collahan, C N½ N½ NW Section 24-11-17w, Bemis field, Ellis County, penetrated Arbuckle lime at 3,380-83 ft., total depth, was acidized, made echometer potential of 3,589 bbl. of oil and was completed for maximum allowable of 3,000 bbl. daily.

Central Petroleum Co.'s No. 1 Hadley, C N½ NW SE Section 12-11-18w, South Burnett area, had Arbuckle lime at 3,357-65 ft., total depth, swabbed 100 bbl. of oil in 75 minutes, made echometer potential of 3,432 bbl., and completed for maximum allowable of 3,000 bbl. daily.



Midcontinent Map Co., Wichita

The Cairo gas area of the Cunningham field, Pratt County, became an oil pool with completion of Skelly Oil Co.'s No. 1 Harding, Section 7-28-11w, a gas well that turned to oil

Trigg Drilling Co.'s No. 1 Baker, E½ NW NE Section 15-12-18w, Walter area, had Simpson formation at 3,760 ft., and was dry and abandoned at 3,821 ft., total depth.

Stafford County

Trigg & Allen's No. 1 Mellies, C W½ W½ SW Section 36-21-12w, Max pool, Stafford County, found Arbuckle lime at 3,561-78 ft., total depth, pumped 141 bbl. of oil in 8 hours and made daily potential of 423 bbl.

Continental Oil Co.'s No. 1 Keller, NE cor. Section 22-24-13w, St. John area, pumped 130 bbl. of oil in 8 hours from Arbuckle lime at 4,110-15 ft., total depth, and was completed for daily potential of 390 bbl.

McPherson County

Two new operations in McPherson County were reported. Stelbar Oil Corp.'s No. 1 Jones, C N½ NE NW Section 19-17-1w, set 10-in. casing at 168 ft. and was waiting on cement. Bradley Brothers & Blair's No. 2 Mattson, C S½ NE NE Section 30-20-5w, was moving in material.

Russell County

Cities Service Oil Co.'s No. 4-A Mai, S½ S½ SW Section 24-15-14w, Trapp field, Russell County, found Arbuckle lime at 3,330-35 ft., total depth, and oil rose 2,000 ft. in the hole. It was acidized and completed for echometer potential of 2,615 bbl. of oil daily.

Skelly Oil Co.'s No. 9 Opdycke, N½ NE SW Section 29-14-13w, Hall pool, pumped 385 bbl. of oil in 8 hours and made daily potential of 1,156 bbl. Production was from Lansing lime at 2,890-2,936 ft., total depth.

Ellsworth County

Duwe & Farris' No. 1 Boye, W½ SW SW Section 9-16-10w, Stoltenberg area, Ellsworth County, found Arbuckle lime at 3,365-72 ft., total depth, pumped 187 bbl. of oil in 7 hours, had depthograph rating of 6,188 bbl., and was completed for 3,000 bbl. maximum-allowable potential. It extends the pool ⅛ mile northward.

Butler County

Rex Morris' No. 4 Johnson, SE NE SE Section 20-26-7, Guenther area, Butler County, was acidized and pumped 35 bbl. of oil in 24 hours from Mississippi-lime pay at 2,740-77 ft., total depth.

Marion County

R. E. Youker's No. 2 Martin, W½ SW SE Section 3-17-4, Lost Springs pool, Marion County, found Mississippi-lime pay at 2,358-87 ft., total depth, and pumped 80 bbl. of oil and 3 bbl. of water daily.

H. H. Royer's No. 1 Kroch, NE NE NW Section 28-18-4, Marion County wildcat, was a machine.

Coffey County

D. E. Dunne's No. 7 Rossillion, NE SE SE Section 1-23-14, Van Noy area, Coffey County, pumped 3 bbl. of oil daily and was completed in Mississippi lime at 1,512-53 ft., total depth.

Pratt County

Skelly Oil Co.'s No. 1 Harding, C SW¼ Section 7-28-11w, Cairo sector of the Cunningham field, Pratt County, a shut-in gas well that began producing oil when reopened recently, was acidized and recompleted for daily potential of 374 bbl. of oil after flowing 124 bbl. in 8 hours. Gravity of the oil was 36°. Gas gaged 2,250,000 cu. ft. Production included 28 per cent basic sediment and water. It originally was completed as a gas well in Viola lime at 4,283 ft., total depth. It is the first oil well in the Cairo area, and is about 5 miles southwest of nearest oil production in the Cunningham pool.

Wildcat Completions

Royer & Spencer's No. 1 Trear, NW cor. Section 20-21-12, wildcat in Lyon County, missed Bartlesville sand, found Mississippi lime at 1,996 ft., had a hole full of water at 1,997-2,006 ft., and was abandoned.

Patton Drilling Co.'s No. 1 Hoss, C W½ NW SW Section 12-30-15w, Barber County wildcat, topped Simpson formation at 4,520 ft., Arbuckle lime 4,614 ft., and was dry and abandoned at 4,760 ft., total depth.

Forest City Basin Activity

ST. JOSEPH, Mo., Jan. 1.—Operations in the four-states Forest City basin were practically at a standstill during the holidays, but resumption of work at all important wildcats was expected early in the new year, weather permitting.

The Falls City, Neb., discovery well was reported flowing again on December 31, after having been off production for some time while the hole was being reconditioned. The well, Pawnee Royalty Co.'s No. 1 Boice, C NE NE Section 18-1n-16, Richardson County, was flowing at the rate of 360 bbl. of oil daily, according to telegraphic dispatches from Falls City. Rods were being run, preparatory to resuming a pumping test in an effort to win the Nebraska state bonus of $15,000 for the first oil well in the state to produce as much as 50 bbl. daily for 60 days. The well will be permitted to flow naturally for sufficient time to indicate potential productivity before resuming the pumping test, it was said. The discovery had produced for 19 successive days before water broke in from behind the casing and a clogged pump caused cessation of pumping on December 8. The hole was cleaned out and 8-in. casing was cemented at approximately 2,279 ft., plug was drilled, and oil rose 1,400 ft. in the hole in 18 hours. Casing seat was not definitely determined, one report placing it at 2,240 ft., because operators had not released definite information. Production was from Hunton lime at 2,279-88 ft., total depth.

The company's second Richardson County test, No. 1 Meyer, C NW NW Section 24-1n-15, was reported drilling below 2,100 ft. after underreaming casing.

In the Missouri sector of the basin, Miller and others' No. 1 Corrough, C SE SE Section 24-57-35w, near St. Joseph, Buchnanan County, topped Hunton lime at 1,642 ft., had a hole full of water at 1,792-95 ft., and ran casing to 1,898 ft., and bailing indicated water had been shutoff. Drilling was to be resumed after the holidays.

Vincent-Roach and others' No. 1 Dillingham, C N½ NE SW Section 16-53-34w, Platte County, had drilled to 1,025 ft. before shutting down. It was in sandy formation thought to be just above Mississippi lime. It was thought to be running favorably on structure.

Phillips Petroleum Co.'s No. 1 Creston, C SE NE Section 31-71-30w, Union County, Iowa, was underreaming 13-in. casing at 1,264 ft. Mississippi lime was expected at around 1,300 ft.

McLaughlin Sons, Inc.'s No. 1 McLaughlin, SW NE NW Section 4-10-20, Jefferson County, Kansas, had a

(Continued on Page 69)

Oklahoma Fields

(Continued from Page 55)

Aladdin Oil Co.'s No. 1 Wade, SW NE SW Section 3-5-9w, flowed 63 bbl. of oil in 4 hours and was estimated good for 378 bbl. daily at total depth of 3,535 ft. Casing was perforated at 3,310 ft. Location is on Cement townsite.

Sinclair Prairie Oil Co.'s No. 1 German, SW NW NW Section 1-6-13w, wildcat west of Cement and southwest of Carnegie in Caddo County, was drilling below 9,130 ft. in green shale. It topped Hunton lime at 7,157 ft., Sylvan shale 8,035 ft., Viola lime 8,276 ft.

Magnolia Petroleum Co. staked location for No. 14 McKenna, NE SE SE Section 11-5-9w, Cement area, but work was delayed by inclement weather.

Wildcat Operations

Waco Turner was due to resume work soon at No. 1 Smith, NE SW SE Section 16-3s-1w, wildcat east of the Hewitt field in Carter County, after shutting down for water at 3,640 ft. in shale. A showing of oil was found in sand at 1,658-70 ft.

Magnolia Petroleum Co.'s No. 1 Fiekes, C SW SW Section 21-18-14w, Dewey County wildcat, was reported drilling around 5,570 ft. It topped Fort Riley formation at 3,710 ft. and found Herrington lime at 3,765 ft.

Phillips Petroleum Co.'s No. 1 Blankenship, C SW NW Section 33-10-13e, wildcat in northwestern McIntosh County, was making hole around 1,400 ft. It found Salt sand at 981 ft. and has gas estimated at 5,000,000 cu. ft. at 1,054 ft. in the sand.

P. J. McIntyre, Russell Tarr and others' No. 1 Campbell, SE NE SE Section 24-10-7, north of the North Bethel pool, Seminole County, was bottomed at 3,524 ft., plugged back to 1,620 ft. and was to test a showing of oil at 1,605-20 ft.

It was reported that R. L. Scott and others would start drilling with machine soon after the first of the year at No. 1 Scott, SE SW NE Section 28-7s-15e, wildcat south of Boswell, Choctaw County.

Application of a Garlock Metric O.D. KLOZURE to double row ball bearing in a compressor.

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The Garlock KLOZURE keeps dust, dirt and water out of the bearing . . . keeps oil and grease in. The KLOZURE sealing ring is made of an *exclusive* Garlock compound which resists oil and water at high or low temperatures. It is dense, grainless, tough and resilient . . . does not become soft and flabby in service. Complete range of sizes. Write for catalog!

METRIC O.D.'S

Garlock now manufactures a line of Metric O.D. KLOZURES to fit into the same housing bore that receives ball and roller bearings made to Metric O.D.'s. Metric O.D. KLOZURES frequently save machining and tooling costs and installation time. Write for further details.

THE GARLOCK PACKING CO., Palmyra, N. Y.

TULSA, OKLA. HOUSTON, TEX. LOS ANGELES, CALIF.

Garlock KLOZURE

General view of Fletcher Oil Co.'s new plant in Wilmington, Calif.

Fletcher Oil Builds a Compact New Plant

LOS ANGELES, Calif., Jan. 1.—A new plant has been built by Fletcher Oil Co. on a bare strip of land on Main Street, Wilmington, Calif., to meet special conditions in line with a special policy, both as to supply of raw material and marketing of products. It is a whole refinery in itself. Precedents that usually govern design, location and setup of such plants were disregarded. For that reason, the Fletcher installation possesses some features peculiar to itself.

In the first place, it has no crude supply, and it does not need any. So far as known, it is the only refinery on the Pacific Coast—or in the whole country for that matter—designed to operate on intermediate products from other refineries and to market part of its products through still others.

The plant consists of a single-coil Dubbs cracking unit, rated charging capacity 1,100 bbl. per day of gas oil, and a U.O.P. nonselective catalytic polymerization unit of sufficient capacity to convert to polymer gasoline the olefins contained in the cracked gases.

While adapting the plant strictly to present conditions and policies, Fletcher has had in mind that conditions change frequently and rapidly in the oil business. Therefore, the plant has been designed with an eye to future changes if and when called for at lowest possible cost.

It is designed to crack gas oil or kerosene distillate or fuel oil, whichever can be bought at most advantageous prices from other California refiners.

The products are cracked gasoline of 72-73 octane rating (L-3 method) and cracked fuel oil of low gravity, low viscosity and low cold test. The motor fuel is marketed through Fletcher-controlled stations in California, Idaho, and Nevada. The fuel is taken by another refiner, whose advertising and sales promotion of Dubbs-cracked fuel oil have built up a demand that requires more than he can produce.

The Fletcher units were built by Fluor Corp., Inc., in accordance with Universal Oil Products Co.'s design and specifications.

The major elements of the cracking unit are U.O.P. upshot furnace, reaction chamber, fractionating column, stabilizer, and absorption equipment.

The furnace uses Key Co. Type 7000 chromium-molybdenum headers and chromium-molybdenum with silicon alloy seamless steel tubes. It is equipped with burners to use either fuel oil, natural gas or the stripped cracked gas from the polymerization unit. Uniform temperatures are maintained by remote control.

Construction of all vessels conforms to the latest A.P.I.-A.S.M.E. and California codes for pressure vessels. The reaction chamber was stress-relieved, after welding, and X-ray tested. The reaction chamber is 4 ft. 6 in. in diameter, by 40 ft. high, and designed for safety-valve setting of 475 lb. and design temperature of 950° F. The flash chamber is 6 ft. 6 in. in diameter by 30 ft. high, designed for safety-valve setting of 105 lb. and design temperature of 850° F. The fractionating column is 5 ft. 6 in. in diameter by 55 ft. high, equipped with cast-iron bubble trays with internal manways, cast-iron caps and side-to-side pans.

The stabilizer tower, which is 3 ft. in diameter and 38 ft. 6 in. high, likewise has removable cast-iron trays. Safety-valve setting is 275 lb. and design temperature 400° F.

The reaction chamber and flash chamber are alloy-lined throughout with 11-13 chrome lining. The fractionating column in the lower section is also alloy-lined with a 5/16-in., 11-13 per cent chrome lining. All process piping from the heater to the fractionating column is 4-6 chrome piping, thus making this the safest plant the engineers know how to design for the particular conditions involved.

Process pumps are steam-driven, and the hot-oil pump is a horizontal duplex plunger pump built by Union Steam Pump Works, and driven by an Elliott steam engine. This pump has 4-6 chrome blocks and alloy plungers. The size of the pump is 5⅝ by 16 in., operating at 690-lb. discharge.

The main pump and control house is divided into a hot pump room, cold pump room and a control room. This building is of fabricated steel structure, and in the control-room section are located instruments for all of the units of the plant.

Detailed operation of plant can be closely watched at all times with this arrangement. It provides instruments and controls for the regulation of temperature and pressures throughout the process equipment.

Recording temperature and pressure controllers have been provided in all essential locations. Recording potentiometers give continuous records of

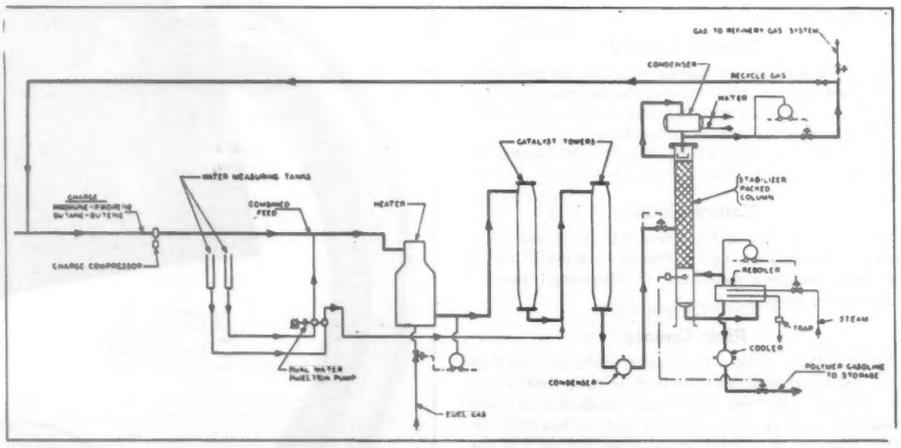

Fig. 2—Flow diagram of midget catalytic cracking unit

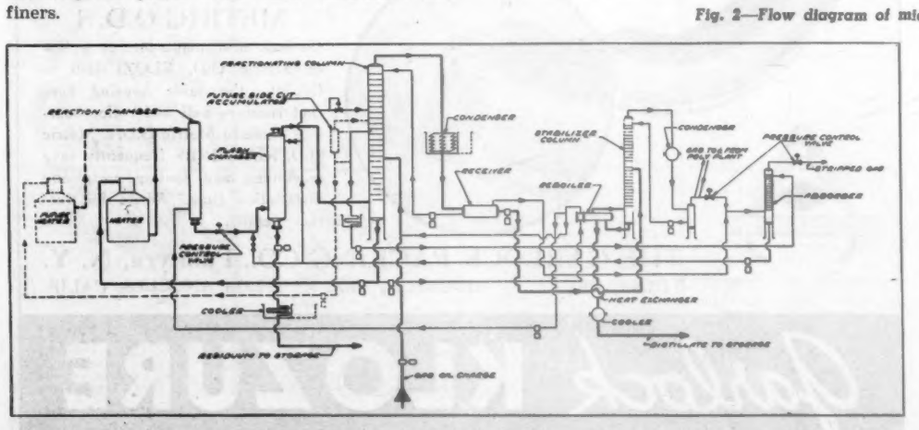

Fig. 1—Flow chart of Fletcher Dubbs cracking unit

furnace outlet temperatures and indicating potentiometric points are provided for checking temperatures at important locations throughout the plant. Dropout valves are provided with cable controls for remote operation.

U.O.P. Catalytic Polymerization Plant

The nonselective polymerization unit processing cracking-plant stabilizer gas consists essentially of a charge compressor, heater catalyst towers and a stabilizer together with connecting heat-exchange equipment, as shown by Fig. 1.

The charge compressor is an Ingersoll-Rand 4½ by 9-in. single stage, double acting horizontal machine, driven by a Waukesha gas engine. The normal capacity of the compressor is 575,000 cu. ft. per day at suction conditions of 150° F. and 180 lb., and a discharge pressure of 500 lb.

The heater raises the temperature of the polymerization-plant feed from the compressor to about 325°-425° F., the temperature being increased periodically during the course of the run as the catalyst activity falls off.

The heater shell housing the combustion chamber has a 4 ft. 6 in. diameter, a length of 7 ft. 8 in., and is lined with 3 in. of insulating concrete consisting of Haydite, Lumnite and Vermiculite. The 2-in. combined spiral and helical coil through which the process gas passes is arranged so that there is about a 3-in. clearance between the coil and the heater walls. The heater is automatically gas-fired by a diaphragm control valve operated by a temperature controller, with control point located at inlet of first catalyst tower.

After leaving the heater, the gas passes to the catalyst towers, of which there are two. They are arranged in series, 24 in. in diameter by 14 ft. 6 in. long, designed for 500 lb. at 500° F. The catalyst towers are filled with a solid phosphoric acid catalyst. After passing through the condenser, polymer plus unreacted fractions from the catalyst towers is fed under pressure to the polymerization stabilizer which is fabricated from 18-in. seamless pipe and is 30 ft. 6 in. long, designed for 325 lb. at 350° F.

The stabilizer is packed with ½-in. ceramic Raschig rings. The stabilized polymer gasoline is withdrawn through a cooler to storage and the spent gas is released through a pressure-control valve to the refinery fuel system.

Since a slight amount of moisture is required in the gases to improve the polymerization reaction, condensate from plant steam is charged from two measuring tanks made of 6-in. pipe to the discharge of the compressor and to the process line between reactors, respectively, at the rate of 1.2 and 2.2 gal. per hour.

Water in the above amounts is delivered by a ⅜-in. and 7/16-in. by 1½-in. dual Hills-McCanna proportioning pump with constant-speed motor drive and adjustable strokes, thus permitting careful control on the quantities pumped by each cylinder.

Diluting Charge Gas

In order to dilute the charge gas to the desired olefin concentration, piping is so arranged that gas beyond the pressure-control valve on the polymerization stabilizer can be admitted in part directly, if needed, to the compressor suction as well as to refinery fuel system. Should the suction pressure drop, the compressor will automatically draw on recycle and, if pressure tends to increase, the pressure-control valve operating on gas to fuel will open more until constant suction pressure is attained. With this system of controls smooth operation can be realized with a minimum of effort on the part of the operator. If it is desired to shut down the polymerization plant, this can be accomplished without upsetting the cracking plant in any way.

Rocky Mountain Area

(Continued from Page 53)

down and cement was being drilled in the 7-in. when the well blew in for the second time. The gas is believed to be coming from sand at 2,905-59 ft. The well blew open for 4 days before fittings could be installed to shut it in.

Texas Co.'s No. 3 Government, C NE SW Section 17-32n-5w, an outside well at the extreme southern end of the field, was plugged and abandoned at 3,044 ft. The Sunburst sand at 2,898-2,910 ft. was dry. The upper Cut Bank at 2,965-90 ft. showed for 7 gal. per hour at 2,978-90 ft. Elevation is 3,789 ft. Lower Cut Bank was absent.

Texas Co.'s No. 3 Hessler, C SE NW Section 20-33n-5w, swabbed 50 bbl. the first 24 hours at 3,004 ft., total depth, after being shot with 5, 10, and 20 qt. at 2,996-3,000 ft., the main Cut Bank pay. It is a completion.

Glacier Production Co.'s No. 1 Minette, C NE NW Section 34-33n-5w, had 1,200 ft. of oil in the hole from the main pay of the Cut Bank sand at 2,950-80 ft., which also is the total depth, and is swabbing to test. Top of the Cut Bank was at 2,940 ft.

Santa Rita O. & G. Co.'s No. 2 Rasmussen, NE SW SW Sec. 32-33n-5w. R.O.G.
Tarrant-Wiley's No. 3 Connolly, SE SW NE Sec. 31-34n-5w. Drlg. 1,720 ft.
A. E. Crumley's No. 3 Jones, NE NW SE Sec. 31-34n-5w. Drlg. 2,300 ft.
Wilkinson & Potter's No. 4 Allot. 127, 660 ft. N, 300 ft. W lines, Lot 1, Sec. 1-32n-6w. Drlg. 2,000 ft.
Glacier Prod. Co.'s No. 4 Miller, C NW NE Sec. 29-33n-5w. Drlg. 2,625 ft.
A. B. Cobb's No. 1 Osurl, C SW NW Sec. 30-37n-4w. R.O.G.
Texas Co.'s No. 2 State M-246, C NE NE Sec. 36-34n-6w. Drlg. 2,700 ft.
A. B. Cobb-T. T. Co.'s No. 1 Unit D, C SW NE Sec. 18-36n-5w. Cg. 2,837 ft.
Cobb-Reagan's No. 4 Jackson, SW SW SE Sec. 5-32n-6w. R.U.R.
Texas Co.'s No. 2 Lindquist, C SW SE Sec. 17-32n-5w. T.D. 2,886 ft.; 7-in. cmtd. 2,861 ft.; tstg.
Glacier Prod. Co.'s No. 2 Rigney, C SE SW Sec. 35-36n-6w. T.D. 2,970 ft.; S.I.

Hill County

J. Gudgel's No. 1 Mancin, SE NE NW Sec. 19-37n-15e. Drlg. below 1,200 ft.
Independent Nat. Gas Co.'s No. 2 Stranahan, C SE SW Sec. 14-32n-17e. T.D. 1,270 ft.; rng. 7-in.

Toole County

Dr. Boris A. S. Aronow's No. 3 Ellingson, NW SE SE Section 15-35n-3w, on the west side of the Kevin-Sunburst field, proved to be a much better than the average well. It was completed at 1,738 ft. in the contact and made 7½ bbl. per hour initially through a ⅝-in. bean, and then was pinched in to 65 bbl. per day to offset danger of water intrusion. Estimates place it at 200 bbl. or better per day, although no open gage was taken. It was not acidized. The Sunburst at 1,505-25 ft., which was cased off, made 1,500,000 cu. ft. of gas.

Prevol & Shay's No. 4 Government, NW NW SW Section 11-35n-3w, failed to respond to second acid treatment, and was plugged and abandoned at 1,807 ft.

Casper T. Olen's No. 9 Engemoen, NW NE NW Sec. 14-35n-2w. S.D. 70 ft.
L. J. Yealy's No. 14 Shaw, NW SW NE Sec. 35-36n-2w. R.O.G.
Lemac Oil Co.'s No. 1, C NE NE Sec. 27-36n-2w. Drlg. 620 ft.
Frazier & Smith's No. 2 Van Note, NE SW NW Sec. 30-35n-2e. S.D. 1,380 ft.
Coolidge & Coolidge's No. 1 Maley, SW NE SE Sec. 31-36n-1w. S.D. 100 ft.
W. E. Rice Co.'s No. 4 Kearns, Lse. 8, C W½ E½ SE Sec. 18-35n-2w. T.D. 1,570 ft.; rng. 6⅝-in.
C. L. Smith, Agt.'s No. 1 Govt., SW SE NW Sec. 13-35n-2w. S.D. 1,345 ft.; fish. rec.
Morton & Shaw's No. 2 Ellingson, SE NE NW Sec. 23-35n-3w. Drlg. 650 ft.
Superior Pet. Co.'s No. 3 Haugen, C NE NE Sec. 11-35n-3w. Drlg. 804 ft.
A. Beardslee's No. 12 Swears, CSL SE NW Sec. 9-35n-2w. Drlg. 500 ft.

Yellowstone County

Calitana Oil Co.'s No. 1 Stallinberger, NE NE SW Sec. 18-3n-23e. T.D. 5,129 ft.; resuming under new management; (formerly Broadview Dome Oil Co.).

UTAH

Grand County

Big Six Oil Co.'s No. 1 Govt., SE¼ Sec. 23-22s-19e. Drlg. 300 ft.
Cane Creek Oil Co.'s No. 2 Shaffer, NW SW SW Sec. 31-26s-21e. T.D. 3,360 ft.; set tbg. at 3,300 ft.; prep. to test.

Daggett County

Mountain Fuel Supply Co.'s No. 4 Murphy, SW SE SW Sec. 21-3n-24e. Drlg. 5,495 ft.

Summit County

Longwell Pet. Co.'s No. 1, SE SW SE Sec. 35-3n-5e. T.D. 3,216 ft. in sh.; U.R. 6¼-in. to bttm.

SOUTH DAKOTA

Harding County

South Dakota State Roy. Co.'s No. 1 State, SW NW Sec. 35-18n-1e. S.D. indef. 7,521 ft.

Ohio Fields

(Continued from Page 53)

ducing Co.'s No. 7 J. W. Sowers, Section 18, was dry through the Medina; total depth 4,213 ft.

Perry County, Madison Township, Atha Co.'s No. 1 M. A. Baird, Section 4, had a gas showing in the Clinton, shot failed to improve, abandoned at 3,263 ft.

In Washington County, three gas wells and two dry holes were completed in Barlow Township. Hope Construction & Refining Co.'s No. 3 John H. Greenlee, Section 5, has an open flow of 450,000 cu. ft. from Stray sand at 1,179 ft. Campbell and others' No. 1 J. W. Ormiston, Section 5, made 470,000 cu. ft., open flow, from the Stray at 1,148 ft. Porter and others' No. 1 C. H. Male, Section 7, open flow of 200,000 cu. ft. from Maxton sand at 1,403-15 ft. Schramm Brothers' No. 11 W. A. Christopher, Section 1, was dry, total depth 2,020 ft. Anderson's No. 1 T. B. Milligan, Section 1, was dry in the Maxton, total depth 1,476 ft.

Wayne County, Chippewa Township, East Ohio Gas Co.'s No. 1 Andrew Baysinger, Section 9, found the Clinton dry, total depth 3,689 ft.

Forest City Basin Activity

(Continued from Page 67)

fishing job and was shut down at 1,915 ft. Hunton lime was topped at 1,875 ft. Big gas production was found in upper formations.

Fifteen oil and gas leases on Indian land in Richardson County, Neb., and other scattered tracts in Kansas and Nebraska, were offered for sale at an auction at the Pottawatomie Indian Agency, Horton, Kans., January 3. The Richardson County tracts are on the Sac and Fox reservation near Preston.

California Fields

(Continued from Page 60)

Oil Co. completed No. 1 Lomita, flowing by heads at the rate of 150 bbl. of 29.6-gravity oil cutting 4 per cent from 5,350 ft. This well was originally drilled vertically to 5,271 ft. and found the Del Amo zone wet. Heavy oil sand was logged at 3,217-3,555 ft. which yielded mud and a small amount of oil on formation tests. The hole was then whipstocked to the northwest and completed at the present deviated depth of 5,350 ft.

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Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ont., Dec. 30.—Aggregate crude allowables for Turner Valley, reduced on December 2 to 14,000 bbl. a day, were further cut on December 22 to 12,000 bbl. The potential of all crude producers, as measured through 1-in. choke, was given as 63,583 bbl. by the Alberta Petroleum Association; but this total does not include several recent completions.

Reduction of the allowable was due partly to seasonal slackening in demand, and to the fact that Imperial Oil is changing over its refining operations in Calgary following completion of its new plant. In addition, field storage is overtaxed, and facilities must be provided to handle flush production from four anticipated new completions.

Under the new schedule, 93 crude-oil wells are listed, averaging around 130 bbl. Advance Oil Co.'s No. 5-A, an old producer, has been dropped from the list, being now classified as a gas well. The largest producer is Home Oil Co.'s No. 2 Millarville, in North Turner Valley, with 324 bbl.

Turner Valley Completions

In Section 22-20-3w5, North Turner Valley, Royalite Oil Co.'s No. 43, finished in the Madison lime at 8,800 ft., gave a flow of 2,052 bbl. a day through 1-in. choke on official test. Owing to the steep formations the well had got through only the upper porous horizon of the Madison after drilling 505 ft. in that formation and owing to danger of water at that depth it was not carried to the lower porous zone. First indications were for a small producer but after acidizing with 7,500 gal. it started around 160 bbl. an hour settling to 2,052 bbl. on official test, with good gas pressure. It was given initial allowable of 407 bbl., making it for a few days the largest producer in the field; but in the new schedule this was cut to 317 bbl.

In the southwest portion of the field, Northwest-Hudson's Bay Co.'s No. 2, LSD 9, Section 8-18-2w5, finished 436 ft. in the Madison at 7,586 ft., has been given temporary allowable of 150 bbl. Farther east, Okalta Oil Co.'s No. 7, LSD 3, Section 16-18-2w5, finished 455 ft. in the lime at 7,425 ft., was given initial quota of 163 bbl., later cut to 128 bbl. Acid treatments did not produce the results anticipated, and the well will likely be reacidized in the spring.

Tests in the Lime

In Section 28-20-3w5, North Turner Valley, Home Oil Co.'s No. 4, LSD 9, is below 7,932 ft. after getting the Madison limestone at 7,845 ft., considerably higher than anticipated.

In Section 5-19-2w5, West Central Turner Valley, Royalite Oil Co.'s No. 45, LSD 14, is below 7,448 ft. after getting the lime at 7,060 ft.

In Section 29-18-2w5, Command Oils No. 2, LSD 11, got the lime at 7,698 ft. and is below 7,956 ft.

In Section 17-18-2w5, Royalite Oil Co.'s No. 46, LSD 2, is below 7,801 ft. after getting the Madison at 7,554 ft.

West Central Field

In Section 18-19-2w5, Davies Petroleums' No. 5, LSD 10, is in the Belly River formation below 2,920 ft. Calmont-Northwest Co.'s No. 1, LSD 3, is below 1,016 ft.

In Section 7-19-2w5, Anglo-Canadian Oil Co.'s No. 9 has location in LSD 14. Royalite Oil Co.'s No. 48, LSD 10, is working on derrick. Pacific Petroleums' No. 5, LSD 6, is rigging.

In Section 6-19-2w5, East Crest's No. 6, LSD 16, is digging cellar.

In Section 5-19-2w5, Vanpeg Royalties' No. 1, LSD 9, is in the Blairmore formation below 5,603 ft., and logging somewhat high.

West Side Drilling

In Section 32-18-2w5, Pacific Petroleums' No. 4, LSD 3, is in Belly River formation below 530 ft.

In Section 31-18-2w5, Anglo-Canadian Oil Co.'s No. 7, LSD 9, on the western edge of the structure, got the Home sand at 7,423 ft. and is close to the Dalhousie below 7,584 ft.

In Section 17-18-2w5, Royalite's No. 50, LSD 7, is working on derrick.

In Section 8-18-2w5, Northwest-Hudson's Bay Co.'s No. 3, LSD 15, is deepening after setting 13⅜-in. casing at 841 ft.

North Turner Valley

In Section 15-20-3w5, North Turner Valley, Anglo-Phillips' No. 1, LSD 14, is in the upper Benton formation below 4,023 ft., with deep drilling indicated.

In Section 27-20-3w5, Foothills Oil & Gas Co.'s No. 6, LSD 5, is below 183 ft. The Foothills company is one of the Imperial Oil group of subsidiaries.

In Section 33-20-3w5, Home Oil Co.'s No. 3, LSD 1, is in the Kootenay formation below 7,430 ft. and getting close to the Madison limestone.

In Section 34-20-3w5, Alberta Oil Incomes' No. 1, LSD 4, is in the Benton formation below 2,933 ft. and logging high. Alberta Oil Incomes' No. 2, LSD 4, Section 4-21-3w5, is below 566 ft.

In the Waite Valley area, National Petroleum Corp.'s No. 3, LSD 4, Section 25-20-4w5, is in a hard formation of the Blairmore below 6,305 ft., and getting close to the Home sand.

In the Whiskey Creek area, Mar Jon Oil Co.'s No. 5, LSD 1, Section 5-22-4w5, is around 2,485 ft. and getting close to the Blairmore formation.

Pincher Creek Drilling

After some months of inactivity, the Pincher Creek area in the southern foothills near the Alberta-Montana boundary is to be again tested. Interests headed by F. P. Byrne, a former manager of the Anglo-Canadian Oil Co., have located Alliance Royalties' No. 2 in LSD 14, Section 11-6-2w5, about 2 miles west of the old Weymarn Petroleums well and about 14 miles west of the town of Pincher Creek. Cellar has been finished and some equipment is on location. Preparations are also being made for a test by other interests in the Pleasant Valley district. Earlier tests in the Waterton-Pincher Creek area encountered crude and gas at various depths, but failed to get conclusive results owing to faulting.

Roxana Operations

On the Kootenay dome west of Calgary, Roxana Petroleums' No. 1, Section 8-24-7w5, is preparing to resume from 6,216 ft., after the holiday shutdown. At this depth the hole is 3,111 ft. in the Devonian lime, and getting close to the porous zone where production is expected.

Steveville Field

In the Steveville field, east of Calgary, Standard of British Columbia's No. 1 Princess, LSD 13, Section 22-20-12w4, is drilling and reaming below 3,957 ft., more than 755 ft. below the Madison limestone contact. It got a fair crude show in the Madison.

Spring Coulee Well Abandoned

On the Spring Coulee structure, 35 miles southwest of Lethbridge in southern Alberta, E. L. Cord's No. 1 Malmberg, LSD 16, Section 35-3-23w4, has been abandoned because of hole trouble. The test got the Madison limestone at 5,988 ft. and was drilled to 6,081 ft., cores showing good oil saturation in the lime. Cementing for water shutoff in an upper horizon proved defective, but two attempts to recement reduced the water encroachment to about 10 bbl. a day. The well was then gun-perforated and acidized. A packer was set at the lower zone and the well bailed down through the tubing. On completing the acid treatment the surface head was unhooked and a christmas tree installed, when the well started to flow with every indication it would blow itself in. Later the packer started to leak, the heavy upper head of water killing off the flow. After swabbing a considerable time it was decided the cement job could not be remedied and the well was accordingly abandoned. Information secured in drilling has determined the operators, E. L. Cord and the Western Drilling Co. to start a second test on an adjoining location.

Border Fields

In the Taber field, southern Alberta, Border Petroleums' No. 1, LSD 5, Section 32-19-17w4, has discontinued swabbing and will install pump to test production from the top of the lime at 3,525 ft. The well will be cleaned and acidized before testing.

Lloydminster Field

In the Saskatchewan end of the Lloydminster field, Shaw Petroleums' No. 3, LSD 5, Section 23-49-28w3, came into production at 1,710 ft. after getting gas shows at 1,390 and 1,450 ft. The crude, which appears to be somewhat lighter than that in previous Lloydminster wells, rose over 900 ft. in the hole in spite of bailing, and a flowing well may develop. Location is about 2 miles east of Shaw's No. 2 which got the pay at 1,753 ft. and is pumping around 200 bbl. a day of 15-

(Continued on Page 78)

Rocky Mountain Runs

Production estimates for week ended December 30:

	Bbl.
WYOMING	
Salt Creek	16,530
Big Muddy	1,180
Dallas Derby	570
Elk Basin	660
Frannie	3,360
Garland	2,630
Grass Creek	1,770
LaBarge	1,090
Lance Creek	24,600
Lost Soldier	1,740
Medicine Bow	940
Oregon Basin	3,010
Osage	550
Quealy dome	530
Rock River	2,630
Wertz	2,150
Miscellaneous	1,300
Total Wyoming	65,240
MONTANA	
Border	200
Cat Creek	380
Cut Bank	10,860
Dry Creek	970
Kevin-Sunburst	4,410
Pondera	810
Total Montana	17,630
COLORADO	
Florence	170
Fort Collins and Wellington	510
Wilson Creek	470
Iles dome	1,940
Moffat	350
Orchard	20
Rangely	100
Tow Creek	130
Price	510
Total Colorado	4,200
NEW MEXICO	
Cooper	3,600
Eaves	810
West Eunice	180
Eunice	20,350
Halfway	90
Hardy	3,530
Hobbs	10,330
Jal	630
Langlie	4,960
Lynch	460
Lynn	900
Mattix	5,300
Monument	21,510
North Lynch	20
Penrose	4,690
Rhoades	60
Skaggs	90
Skelly	1,780
South Eunice	4,100
South Lovington	1,310
Vacuum	11,410
Artesia-Maljamar	13,390
Getty	100
Hogback	200
Rattlesnake	560
Table Mesa	90
Total New Mexico	110,450
Total Rocky Mountain region	197,520

STOCKS HELD IN PACIFIC COAST TERRITORY BY CALIFORNIA OIL COMPANIES

	Nov. 30, 1939	Oct. 31, 1939	November changes	Dec. 31, 1938 (reclassified)
1 Gasoline-bearing crude	35,011,252	35,413,929	—402,677	36,225,312
2 Nongasoline-bearing crude	13,654,537	14,065,553	—411,016	16,282,177
3 Unblended natural gasoline	1,652,947	1,889,973	—237,026	2,699,455
4 Gasoline (not including distributing and service stations)	15,011,338	14,338,180	+673,158	13,259,369
5 Naphtha distillates	*1,283,727	*1,263,943	+19,784	*1,566,349
6 Gas oil and diesel oil	9,880,120	9,974,159	—94,039	10,539,937
7 Fuel oil residuum	67,437,999	68,655,549	—1,217,550	70,967,881
8 All other stocks	†7,944,532	†7,659,247	+285,285	†6,153,809
Total	151,876,452	153,200,533	—1,384,081	157,684,289
*Estimated amount of unfinished gasoline contained in item #5	1,054,145	1,018,615		1,350,379
†Coke included in item #8	859,288	730,298		92,066

Hoard Exploration Co.
Seismograph Surveys
618 Esperson Bldg.
Houston - - Texas

WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S. T. R.	Depth	Status—
Union Oil, No. 74 Callender, Dominguez, Los Angeles	29- 3-13	7,117	cleaning out
Union Oil, No. 13 Carson, Dominguez, Los Angeles	33- 3-13	3,549	sd. sh. drlg.
Shell Oil, No. 100 Reyes, Dominguez, Los Angeles	33- 3-13	8,280	O.S. drlg.
Barnsdall Oil, No. 1 Santa Fe, Rosecrans, L. A.	20- 3-13	8,792	sd. sh. drlg.
Averill, George, No. 3 South, Rosecrans, Los Angeles	20- 3-13	8,405	swabbing
Apex Pet., No. 1 Hatfield, Rosecrans, Los Angeles	20- 3-13	4,850	sd. sh. drlg.
Kelly & Sons, No. 1 McMillen, Rosecrans, Los Angeles	20- 3-13	7,401	sd. sh. drlg.
South. Calif. Pet., No. 1 Rowena, Rosecrans, L. A.	19- 3-13	5,994	sd. sh. drlg.
Union Oil, No. 36 Rosecrans, Rosecrans, L. A.	19- 3-13	3,782	sd. sh. drlg.
Univ. Cons. Oil, No. 18 Trust, Rosecrans, L. A.	18- 3-13	7,735	flow 145 b.d.
Basin Oil, No. 6 Potrero, Potrero, Los Angeles	34- 2-14	3,770	cmtd. 3,769
Basin Oil, No. 7 Potrero, Potrero, Los Angeles	34- 2-14	3,178	sd. sh. drlg.
Tide Water A. O., No. 3 Porter, Aliso Canyon, L. A.	27- 3-16	2,798	sd. sh. drlg.
Tide Water A. O., No. 12 Porter, Aliso Canyon, L. A.	27- 3-16	6,990	hd. sd. drlg.
Tamas Oil, No. 1 Perkins, Newhall, Los Angeles	14- 3-16	3,862	sd. sh. drlg.
Consolidated Pet., No. 4 Needham, Newhall, L. A.	13- 3-16	3,840	sidetracking
Barnsdall Oil, No. 8 R.S.F., Newhall, Los Angeles	27- 4-17	7,291	O.S. drlg.
General Pet., No. 6 Blinn, Wilmington, Los Angeles	35- 4-13	3,325	completing
Bristol Oil, No. 1 Carter, Wilmington, Los Angeles	32- 4-13	3,700	flow 345 b.d.
Dunlap, D. D., No. 6 Harbor, Wilmington, L. A.	2- 5-13	3,057	pump 82 b.d.
Edco Pet., No. 1 Harbor, Wilmington, L. A.	35- 4-13	3,010	sd. sh. drlg.
Gremac Oil, No. 3 Harbor, Wilmington, L. A.	4- 5-13	5,392	sd. sh. drlg.
Hancock Oil, No. 20-B Harbor, Wilmington, L. A.	35- 4-13	1,984	sd. sh. drlg.
Jackson Expl., No. 2 Workman, Wilmington, L. A.	35- 4-13	1,994	sd. sh. drlg.
Long Beach Dev., No. 8-W Harbor, Wilmington, L. A.	3- 5-13	3,865	flow 651 b.d.
Long Beach Dev., No. 9-W Harbor, Wilmington, L. A.	3- 5-13	4,002	flow 570 b.d.
N. Wilmington Oil, No. 1 Meeker, Wilmington, L. A.	32- 4-13	3,036	O.S. drlg.
Royalty Service, No. 3 Santa Fe, Wilmington, L. A.	33- 4-13	5,720	pump 320 b.d.
Royalty Service, No. 7-B Nelson, Wilmington, L. A.	33- 4-13	6,902	P.B. 5,756
Union Pacific R. R., No. 121, Wilmington, L. A.	3- 5-13	3,661	reaming
Union Pacific R. R., No. 122, Wilmington, L. A.	3- 5-13	3,850	completing
Union Pacific R. R., No. 123, Wilmington, L. A.	4- 5-13	3,565	flow 124 b.d.
Union Pacific R. R., No. 124, Wilmington, L. A.	4- 5-13	3,157	cleaning out
Union Pacific R. R., No. 125, Wilmington, L. A.	4- 5-13	2,583	sd. sh. drlg.
Union Pacific R. R., No. 126, Wilmington, L. A.	4- 5-13	3,659	flow 148 b.d.
Union Pacific R. R., No. 21-E, Wilmington, L. A.	3- 5-13	3,594	sd. sh. drlg.
Vulcan Oil, No. 1-W Harbor, Wilmington, L. A.	33- 4-13	5,724	completing
Wilton Oil, No. 10 Harbor, Wilmington, L. A.	32- 4-13	3,591	sd. sh. drlg.
West Whittier Oil, No. 1 Pellissier, Whittier, L. A.	17- 2-11	1,793	sd. sh. drlg.
Kern Oil, No. 31 Monterey, Montebello, Los Angeles	2- 2-12	7,740	completing
Kern Oil, No. 35 Monterey, Montebello, L. A.	2- 2-12	6,736	cleaning out
Union Oil, No. 1 Howard, Montebello, Los Angeles	2- 2-12	6,690	perforating
Union Oil, No. 9 Howard & Smith, Montebello, L. A.	11- 2-12	4,006	sd. sh. drlg.
Albertson Oil, No. 2 Schnakenberg, Montebello, L. A.	3- 2-12	7,707	tested wet
Angle Oil, No. 1 Community, Montebello, L. A.	11- 2-12	7,640	flow 245 b.d.
Bush Oil, No. 1 Newhouse, Montebello, Los Angeles	3- 2-12	7,540	sd. sh. drlg.
Bush Oil, No. 2 Zanetti, Montebello, Los Angeles	3- 2-12	7,030	sd. sh. drlg.
C. A. P. Oil, No. 1 Dutch, Montebello, Los Angeles	11- 2-12	7,657	milling
Crestline Oil, No. 1 Pedro, Montebello, Los Angeles	11- 2-12	6,385	sd. sh. drlg.
Getty-Pac. West., No. 1 Porter, Montebello, L. A.	10- 2-12	6,070	sd. sh. drlg.
Hathaway Oil, No. 3 Dore, Montebello, Los Angeles	3- 2-12	7,440	sd. sh. drlg.
Herley-Kelly, Inc., No. 3 Burke, Montebello, L. A.	2- 2-12	3,380	sd. sh. drlg.
Larson Drlg., No. 3 Van Deusen, Montebello, L. A.	11- 2-12	7,894	fish D.P.
M. O. C. Oil, No. 1 Zinn, Montebello, Los Angeles	11- 2-12	7,606	flow 365 b.d.
Mabee Co., No. 37 Monterey, Montebello, Los Angeles	3- 2-12	7,624	O.S. drlg.
Marion Oil, No. 6 Cowan, Montebello, Los Angeles	1- 2-12	7,487	O.S. drlg.
McVicar & Rood, No. 2 Beech, Montebello, L. A.	11- 2-12	6,992	sd. sh. drlg.
Pueblo Oil, No. 2 Bird, Montebello, L. A.	11- 2-12	7,440	recmtd. 7,432
Rainbow Pet., No. 1 Beverly, Montebello, L. A.	11- 2-12	7,585	flow 320 b.d.
Shoreline Drlg., No. 1 Mont., Montebello, L. A.	11- 2-12	5,584	sd. sh. drlg.
Stagg Oil, No. 1 Brown, Montebello, Los Angeles	10- 2-12	2,986	sd. sh. drlg.
Star Pet., No. 1 Prescott, Montebello, Los Angeles	10- 2-12	6,273	sd. sh. drlg.
Texas Co., No. 2 Wilcox, Montebello, Los Angeles	3- 2-12	7,050	sd. sh. drlg.
Texas Co., No. 3 Wilcox, Montebello, Los Angeles	3- 2-12	5,961	sd. sh. drlg.
Westmont Oil, No. 1 West, Montebello, Los Angeles	11- 2-12	3,141	sd. sh. drlg.
Winlock Oil, No. 1 Win, Montebello, Los Angeles	11- 2-12	7,296	sd. sh. drlg.
Wood-Callahan Oil, No. 2 Todd, Montebello, L. A.	2- 2-12	7,640	completing
Allied Pet., No. 34 Signal, Long Beach, Los Angeles	30- 4-12	4,424	cmtd. 3,857
Atlantic Oil, No. 14 Signal, Long Beach, Los Angeles	19- 4-12	3,340	completing
El Hondo Pet., No. 1 Venago, Long Beach, L. A.	24- 4-13	10,093	fish D.P.
Johnston Drlg., No. 39 Signal, Long Beach, L. A.	24- 4-13	3,486	pump 135 b.d.
Caminol Co., No. 3-19 Dominguez, Long Beach, L. A.	11- 4-13	7,680	O.S. drlg.
Massey, J. P., No. 1 Associates, Long Beach, L. A.	29- 4-12	4,747	completing
Welco Oil, No. 1 Yorba, Richfield, Los Angeles	28- 3- 9	4,198	sd. sh. drlg.
Morgan, George, No. 1 Fricke, Yorba Linda, L. A.	21- 3- 9	1,612	sd. sh. drlg.
Union Oil, No. 22 Hole, East Coyote, Orange	22- 3-10	5,250	sd. sh. drlg.
Standard Oil, No. 2-13 Coyote, East Coyote, Orange	22- 3-10	1,164	sd. sh. drlg.
Southwest Expl., No. 23 State, Hunt. Beach, Orange	10- 6-11	753	sd. sh. drlg.
Southwest Expl., No. 24 State, Hunt. Beach, Orange	10- 6-11	5,135	pump 505 b.d.
Orr, Sara, No. 1 Montgomery, Hunt. Beach, Orange	36- 5-11	4,494	cmtd. 4,452
Continental Oil, No. 42 Bixby, Seal Beach, Orange	11- 5-12	2,862	sd. sh. drlg.
General Pet., No. 1 Was, Garden Grove, Orange	21- 5-10	3,997	sd. sh. drlg.

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S. T. R.	Depth	Status—
Moore, E. H., No. 11 Sugar, Santa Maria, Santa Barb.	29-10-34	4,655	deepening
Union Oil, No. 2-5 O'Donnell, Santa Maria, Santa Barb.	29-10-34	4,182	sd. sh. drlg.
Hearte, O. K., No. 1 Core, Cuyama, Santa Barbara	11- 9-25	2,900	will redrl.
Shell Oil, No. 1 Barrett, San Marcos, Santa Barbara	13- 6-30	1,956	sd. sh. drlg.
General Pet., No. 5 More, Goleta, Santa Barbara	15- 4-28	4,460	sd. sh. drlg.
Coronet Oil, No. 4 Crown, Ojai, Ventura	17- 4-21	963	sd. sh. drlg.
Savage Oil, No. 8 Calumet, Shiells Canyon, Ventura	3- 3-19	2,880	sd. sh. drlg.
Texas Co., No. 138 Shiells, Shiells Canyon, Ventura	4- 3-19	1,496	sd. sh. drlg.
Shaffer & Lehndorfer, No. 1 S. & L., Ventura	30- 3-19	640	sd. sh. drlg.
Renard Oil, No. 1 Sespe, Ventura	6- 4-19	1,112	sd. sh. drlg.
G. E. Dev., No. 7 General, Hopper Canyon, Ventura	13- 4-19	230	sd. sh. drlg.
Continental Oil, No. 13 Grubb, San Miguelito, Ventura	24- 3-24	5,962	sd. sh. drlg.
Continental Oil, No. 14 Grubb, San Miguelito, Ventura	24- 3-24	7,089	cleaning out
C. C. M. Oil, No. 10-B Hobson, Rincon, Ventura	8- 3-24	4,440	O.S. drlg.
C. C. M. Oil, No. 26-B Hobson, Rincon, Ventura	16- 3-24	2,776	sd. sh. drlg.
C. C. M. Oil, No. 8-A Hobson, Rincon, Ventura	15- 3-24	4,596	sd. sh. drlg.
Tide Water A. O., No. 43 V.L.W., Ventura Ave., Vent.	23- 3-23	5,860	sd. sh. drlg.
Tide Water A. O., No. 45 V.L.W., Ventura Ave., Vent.	24- 3-23	1,894	sd. sh. drlg.
Tide Water A. O., No. 16 McGonigle, Vent. Ave., Vent.	23- 3-23	9,350	sd. sh. drlg.
Tide Water A. O., No. 120 Lloyd, Ventura Ave., Vent.	27- 3-23	7,435	sd. sh. drlg.
Tide Water A. O., No. 122 Lloyd, Ventura Ave., Vent.	23- 3-23	5,990	sd. sh. drlg.
Tide Water A. O., No. 20 Hartman, Vent. Ave., Vent.	22- 3-23	7,360	sd. sh. drlg.
Tide Water A. O., No. 21 Hartman, Vent. Ave., Vent.	22- 3-23	7,715	sd. sh. drlg.
Shell Oil, No. 105 Taylor, Ventura Ave., Ventura	29- 3-23	6,800	sd. sh. drlg.
Shell Oil, No. 109 Taylor, Ventura Ave., Ventura	21- 3-23	6,885	O.S. drlg.
Shell Oil, No. 35 Edison, Ventura Ave., Ventura	21- 3-23	6,284	sd. sh. drlg.
Cal. Alliance Pet., No. 2 Hartman, Vent. Ave., Vent.	22- 3-23	3,992	sd. sh. drlg.
Brit. Amer. Pet., No. 9 Hartman, Vent. Ave., Vent.	21- 3-23	8,094	sd. sh. drlg.
Lloyd Corp., No. 3 Dabney, Ventura Ave., Ventura	23- 3-23	10,060	cleaning out
Belridge Oil, No. 1-26, North Belridge, Kern	1-28-20	7,093	sd. sh. drlg.
Belridge Oil, No. 4-27, North Belridge, Kern	27-27-20	8,515	redrlg. 7,896
Belridge Oil, No. 1-22, North Belridge, Kern	28-27-20	5,950	sd. sh. drlg.
Tide Water A. O., No. 8-A Elliott, Lost Hills, Kern	11-26-20	1,400	sd. sh. drlg.
Vedder Pet., No. 31-1 Lambert, Mount Poso, Kern	31-26-28	1,948	gr. sd.; abd.
McDonald & Dearin, No. 3 Kernco, Kern Front, Kern	10-28-27	2,200	pump 90 b.d.
Davis Pet., No. 1 Kernco, Kern Front, Kern	13-28-27	1,230	O.S. drlg.
Dick & Dore Oil, No. 13 Kern, Kern River, Kern	34-28-28	640	pump 5 b.d.
Dick & Dore Oil, No. 14 Kern, Kern River, Kern	34-28-28	294	sd. sh. drlg.
Dick & Dore Oil, No. 15 Kern, Kern River, Kern	34-28-28	460	sd. sh. drlg.
Helm & Smith, No. 17 Kern, Kern River, Kern	34-28-28	440	sd. sh. drlg.
Vedder, D. G., No. 11 Bell, Round Mountain, Kern	12-28-28	1,498	sd. sh. drlg.
O'Reily, Frances, No. 2 Seale, Edison, Kern	5-30-29	4,103	P.B. 4,070
El Tejon O. & R., No. 1 Douglas, Edison, Kern	32-29-29	3,950	pump 140 b.d.
Universal Cons. Oil, No. 2 Cattani, Arvin, Kern	15-31-29	3,161	sd. sh. drlg.
Western Gulf Oil, No. 44-B, KCL, Fruitvale, Kern	22-29-27	3,878	bailing
Western Gulf Oil, No. 1 Ansolabehere, Fruitvale, Kern	27-29-27	2,916	will deepen
Meridian Pet., No. 4 fee, Fruitvale, Kern	23-29-27	3,055	idle
Union Oil, No. 4-23 Bowerbank, Goose Lake, Kern	25-29-24	11,999	sd. sh. drlg.
Standard Oil, No. 3 Mushrush, Wasco, Kern	7-27-24	12,715	sd. sh. drlg.
Continental Oil, No. 5-8-A, KCL, Wasco, Kern	8-27-24	1,866	sd. sh. drlg.
Union Oil, No. 21-34, KCL, Rio Bravo, Kern	34-28-25	10,840	sd. sh. drlg.

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
B. ck., bottom choke.
Br. sh., brown shale.
B.S., basic sediment.
C.&P., cellar and pits.
Cd. or Crd., cored.
C.D., correct depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg., or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.S.T., drill-stem test.
D.P., drill pipe.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Recvd., recovered.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtrkd. or St., sidetracking.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas, and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T. ck., top choke.
T.P., tubing pressure.
Tr., tract.
Tstd., tested.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.O.O., waiting on orders.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shutoff O.K.
W.S.R. or W.O.S.R., awaiting standard rig.
Wtr., water.

Union Oil, No. 52-34, KCL, Rio Bravo, Kern	34-28-25	10,965	sd. sh. drlg.
Superior Oil, No. 2 Fink, Rio Bravo, Kern	27-28-25	11,255	O.S. drlg.
Superior Oil, No. 2 Burner, Rio Bravo, Kern	27-28-25	10,487	sd. sh. drlg.
Standard Oil, No. 11-21, KCL, Greeley, Kern	18-29-26	11,475	O.S. drlg.
Standard Oil, No. 12-7, KCL, Northwest Greeley, Kern	7-29-26	6,685	sd. sh. drlg.
General Pet., No. 1 Farrand, Northwest Greeley, Kern	12-29-25	8,694	sd. sh. drlg.
Shell Oil, No. 4-28-A, KCL, Ten Section, Kern	28-30-26	4,755	sd. sh. drlg.
Shell Oil, No. 74-25-A, KCL, Ten Section, Kern	25-30-25	4,498	sd. sh. drlg.
Tide Water-Continental, No. 3-7-E, KCL, Strand, Kern	7-30-26	5,996	sd. sh. drlg.
Shell-Ohio, No. 64-12-A, KCL, Strand, Kern	12-30-25	8,970	fish D.P.
Ohio Oil, No. 16-E, KCL, Canal, Kern	13-30-25	8,330	flow 2,391 b.d.
Ohio Oil, No. 17-E, KCL, Canal, Kern	13-30-25	384	sd. sh. drlg.
Shell Oil, No. 21-13-A, KCL, Canal, Kern	13-30-25	8,470	sd. sh. drlg.
Richfield Oil, No. 72-33-B, KCL, Tupman, Kern	33-30-25	3,972	sd. sh. drlg.
Richfield Oil, No. 58-29-A, KCL, Tupman, Kern	29-30-25	7,991	sd. sh. drlg.
Richfield Oil, No. 76-29-A, KCL, Tupman, Kern	29-30-25	3,855	sd. sh. drlg.
Richfield Oil, No. 67-4-B, KCL, Cole's Levee, Kern	4-31-25	9,909	completing
Shell Oil, No. 81-17-B, KCL, Cole's Levee, Kern	17-31-25	6,684	sd. sh. drlg.
Standard Oil, No. 20-2, KCL, Cole's Levee, Kern	9-31-25	8,865	sd. sh. drlg.
Standard Oil, No. 20-3, KCL, Cole's Levee, Kern	9-31-25	9,820	O.S. drlg.
Ohio Oil, No. 6-F, KCL, Cole's Levee, Kern	11-31-25	8,880	sd. sh. drlg.
Ohio Oil, No. 7-F, KCL, Cole's Levee, Kern	3-31-25	5,366	sd. sh. drlg.
Tide Water A. O., No. 81, KCL, Cole's Levee, Kern	14-31-25	10,934	P.B. 10,815
Tide Water A. O., No. 65, KCL, Cole's Levee, Kern	13-31-25	9,250	sd. sh. drlg.
Tide Water A. O., No. 72, KCL, Cole's Levee, Kern	14-31-25	1,035	sd. sh. drlg.
Union Oil, No. 54-11, KCL, Cole's Levee, Kern	11-31-25	9,715	will deepen
Union Oil, No. 56-11, KCL, Cole's Levee, Kern	11-31-25	9,979	O.S. drlg.
Richfield Oil, No. 1 Slough, South Ten Section, Kern	6-31-26	7,990	sd. sh. drlg.
Quality Oil, No. 4 Cypress, Midway-Sunset, Kern	22-32-23	1,944	O.S. drlg.
Merritt-Annex Oil, No. 1-34, M.A., Midw.-Sunset, Kern	34-32-24	2,160	sd. sh. drlg.
Oxford Oil, No. 7 Midway, Midway-Sunset, Kern	27-31-22	496	sd. sh. drlg.
General Pet., No. 1 B.V.A., Midway-Sunset, Kern	1-32-24	10,614	fish D.P.
Signal Oil & Gas, No. 6 Kendon, Midway-Sunset, Kern	35-32-23	2,386	bailing
Shell Oil, No. 45-9 B.V.A., Midway-Sunset, Kern	9-32-25	9,890	redrlg. 8,880
National Oil, No. 34 Sunset, Midway-Sunset, Kern	35-32-23	2,316	idle
Bihl, J. N., No. 2-A Royer, Midway-Sunset, Kern	7-11-23	2,406	gas well
Ohio Oil, No. 43-3-B, KCL, Paloma, Kern	3-32-26	7,394	redrlg. 6,270
Western Gulf-Texas, No. 74-3-A, KCL, Paloma, Kern	3-32-26	10,052	sd. sh. drlg.
Richfield Oil, No. 81-36 B.V.A., B. Vista Lake, Kern	36-31-25	10,898	sd. sh. drlg.
Continental Oil, No. 1-F, KCL, San Emidio, Kern	5-10-21	10,545	gr. sd.; abd.
Shell Oil, No. 52-2-13-A, KCL, San Emidio, Kern	13-11-22	12,770	hd. sh. drlg.
Cal-Stan Oil, No. 1 Weber, McKittrick, Kern	34-30-22	1,220	O.S. drlg.
Burrhus, V. E., No. 1 Well, Elkhorn, Kern	21-32-22	900	deepening
Jergins Trust, No. 1 Cheney, Panoche Creek, Fresno	29-14-13	3,970	sd. sh. drlg.
Standard Oil, No. 51-19-B fee, N.E. Coalinga, Fresno	19-19-16	8,102	will redrl.
Standard Oil, No. 62-19-B fee, N.E. Coalinga, Fresno	19-19-16	7,080	sd. sh. drlg.
Union Oil, No. 57-18 Cook, N.E. Coalinga, Fresno	18-19-16	8,650	sd. sh. drlg.
Union Oil, No. 75-18 Cook, N.E. Coalinga, Fresno	18-19-16	7,880	sd. sh. drlg.
Amerada Pet., No. 22-20 Ewing, N.E. Coalinga, Fresno	20-19-16	5,997	sd. sh. drlg.
Bandini Pet., No. 46-18-B, N.E. Coalinga, Fresno	18-19-16	7,572	sd. sh. drlg.
Superior Oil, No. 2 Husong, N.E. Coalinga, Fresno	18-19-16	7,751	sd. sh. drlg.
Bandini Pet., No. 51-30-B, Central Coalinga, Fresno	30-19-16	6,862	sd. sh. drlg.
Lytle, R. S., agent, No. 22-7-F, S.E. Coalinga, Fresno	7-20-16	6,688	O.S. drlg.
Lytle, R. S., agent, No. 37-18-F, S.E. Coalinga, Fresno	18-20-16	3,995	sd. sh. drlg.
Lytle, R. S., agent, No. 42-18-F, S.E. Coalinga, Fresno	18-20-16	7,660	flow 3,700 b.d.
Univ. Cons. Oil, No. 81-24-C, S.E. Coalinga, Fresno	24-20-15	7,770	O.S. drlg.
Texas Co., No. 4 Exeter fee, S.E. Coalinga, Fresno	6-20-16	7,865	sd. sh. drlg.
Texas Co., No. 1 Anderson, S.E. Coalinga, Fresno	6-20-16	8,200	flow 1,375 b.d.
Standard Oil, No. 66-13-C fee, S.E. Coalinga, Fresno	13-20-15	7,096	sd. sh. drlg.
Standard Oil, No. 31-19-F fee, S.E. Coalinga, Fresno	19-20-16	7,430	O.S. drlg.
Standard Oil, No. 42-19-F fee, S.E. Coalinga, Fresno	19-20-16	2,577	sd. sh. drlg.
Superior Oil, No. 1-B Cagle, S.E. Coalinga, Fresno	6-20-16	8,119	flow 4,440 b.d.
Superior Oil, No. 4 Huffman, K. North Dome, Fresno	29-21-17	10,590	sd. sh. drlg.
K. N. D. A., No. 27-18-J, Kettleman N. Dome, Fresno	18-21-17	8,166	sd. sh. drlg.
K. N. D. A., No. 334-18-J, Kettleman N. Dome, Fresno	18-21-17	5,284	sd. sh. drlg.
K. N. D. A., No. 25-16-Q, Kettleman N. Dome, Fresno	16-22-18	5,486	sd. sh. drlg.
K. N. D. A., No. 36-26-Q, Kettleman N. Dome, Kings	26-22-18	8,298	sd. sh. drlg.
K. N. D. A., No. 47-26-Q, Kettleman N. Dome, Kings	26-22-18	7,875	flow 2,000 b.d.
K. N. D. A., No. 41-28-Q, Kettleman N. Dome, Kings	28-22-18	7,900	flow 1,500 b.d.
Standard Oil, No. 27-19-J, Kettleman N. Dome, Fresno	19-21-17	10,636	fish D.P.
Standard Oil, No. 72-19-J, Kettleman N. Dome, Fresno	19-21-17	10,795	gr. sh. drlg.
Standard Oil, No. 27-7-Q, Kettleman N. Dome, Kings	7-22-18	9,855	O.S. drlg.
Standard Oil, No. 54-7-Q, Kettleman N. Dome, Kings	7-22-18	8,100	sd. sh. drlg.
Standard Oil, No. 63-7-Q, Kettleman N. Dome, Kings	7-22-18	8,010	completing
Standard Oil, No. 32-17-Q, Kettleman N. Dome, Kings	17-22-18	8,290	O.S. drlg.
Standard Oil, No. 61-17-Q, Kettleman N. Dome, Kings	17-22-18	7,375	sd. sh. drlg.
Standard Oil, No. 72-17-Q, Kettleman N. Dome, Kings	17-22-18	6,474	sd. sh. drlg.
Standard Oil, No. 76-17-Q, Kettleman N. Dome, Kings	17-22-18	7,634	sd. sh. drlg.
Standard Oil, No. 83-17-Q, Kettleman N. Dome, Kings	17-22-18	7,992	br. sh. drlg.
Standard Oil, No. 52-21-Q, Kettleman N. Dome, Kings	21-22-18	8,200	sd. sh. drlg.
Standard Oil, No. 74-21-Q, Kettleman N. Dome, Kings	21-22-18	7,871	sd. sh. drlg.
Standard Oil, No. 32-27-Q, Kettleman N. Dome, Kings	27-22-18	7,800	tested wet
Standard Oil, No. 83-27-Q, Kettleman N. Dome, Kings	27-22-18	4,755	sd. sh. drlg.
Standard Oil, No. 63-35-Q, Kettleman N. Dome, Kings	35-22-18	7,030	sd. sh. drlg.
Bristol Oil, No. 1 Ohio-Smith, Kettleman S. D., Kings	35-24-19	8,054	will deepen
Shell Oil, No. 1 Cohn, Tulare Lake, Kings	4-22-19	1,017	cmtd. 1,017
Priest Valley Pet., No. 1 Greve, Priest Val., Monterey	22-20-12	1,880	sd. sh. drlg.
Buttes Oilfields, Inc., No. 6 Buttes, Marysville, Sutter	1-15- 1	6,090	testing

OKLAHOMA

Week Ended December 30

NORTHERN OKLAHOMA

Caddo County

Sinclair Prairie Oil Co.'s No. 1 Gorman, SW NW NW Sec. 1-16-13w. S. heavy oil; cd. 6,442-49 ft.; Wdfrd. 6,600 ft.; Hntn. 7,157 ft.; cd. 7,439-44 ft.; rec. S.O.; drlg. 8,763 ft.

Cleveland County

Neis Burton's No. 1 Boggs, NE NE SE Sec. 16-9-2w. 2nd Wlx. 7,585 ft.; T.D. 7,646 ft.; P.B. 7,473 ft.; shot and acd.; P. 113 B.O.P.D.; 20 to 50% wtr.

Sinclair-Prairie's No. 1 Ward, SE SE SE Sec. 30-7-1. Hntn. 6,185 ft.; Vla. 6,408 ft.; open 30 min. at 6,800 ft.; rec. S. W.; P.B. to 6,782 ft.; T.D. 8,322 ft.; D.S.T. 8,236-8,322 ft.; rec. 1,300 ft. S. W.; P.B. 6,225 ft.; ripped 5,445-60 ft.; H.F.W.; S.D.

J. F. Smith's No. 1 Corbett, C SW NE Sec. 20-6-1. (O.W.D.D.); O.T.D. 6,760 ft.; 6-in. 6,320 ft.; abd.

Canadian County

W. R. Ramsey's No. 1 Mansfield, C NW NE Sec. 16-14-9w. Lytn. 6,800-6,920 ft.; sd. 9,191 ft.; S.S.G.; T.D. 9,607 ft.; perf. 6,384-9,071 ft.; rec. S.W.; D.&A.

Comanche County

Mid Night Oil's No. 1 Howe, NW NW NE Sec. 30-2-13w. O.W.D.D.; O.T.D. 703 ft.; fsg. 998 ft.

Creek County

A. S. Kaplan's No. 1 Anthis, NW NW SE Sec. 12-15-9. Drlg. 2,905 ft.

Sunray Oil Co.'s No. 1 Harris, SW SW NE Sec. 30-14-7. T.D. 2,927 ft.; est. 370,000 cu. ft. gas.

Waite Drlg. Co.'s No. 1 Garrett, NE NE NE Sec. 25-14-10. Drlg. 1,700 ft.

Dewey County

Magnolia Pet. Co.'s No. 1 Fiekes, C SW SW Sec. 31-18-14w. Drlg. 5,528 ft.

Garfield County

Fain Drlg.'s No. 1 Schnakenburg, NE SE SW Sec. 31-21-4w. Drlg. 3,420 ft.

Garvin County

Duckworth & Jennings' No. 1 Bowie, NW NE SE Sec. 3-4-3. W.O.C. 60 ft.

Patsy Oil Co.'s No. 1 James, NW NE NE Sec. 16-5-3. T.D. 3,623 ft.; F. 340 B.O. in 8½ hrs.

Robinson & Midco's No. 1 Clay, SW SW NW Sec. 21-4-3. Simp. dense 3,145 ft.; cd. 3,277-94 ft.; rec. 13 ft. sdy. dolo.; T.D. 3,503 ft.; S.D.

Grant County

Magnolia Pet. Co.'s No. 1 Margay-Johnson, SW SW NE Sec. 29-25-8w. Vla. 6,542 ft.; cd. 6,609-17 ft.; rec. stain of oil and odor gas; perf. Miss. 5,842-60 ft.; N.S.; D.&A.

Hughes County

Tom Nix's No. 1-A Warren, SE SE SE Sec. 4-6-8. Drlg. 832 ft.

Senora O. & G. Co.'s No. 1 Warren, NW NW SE Sec. 35-6-8. T.D. 3,502 ft.; D. &A.

Thompson Bros.' No. 1 Meadors, NE NE NE Sec. 23-9-9. R.U.S.T. 3,230 ft.

Jackson County

English Drlg. Co.'s No. 1-A Aetna Life, SE SE NE Sec. 26-3-20w. Arb. 1,585 ft.; S.D. 1,610 ft. for csg.

Jefferson County

H. M. Weir's No. 1 Carmichael, NE NE SW Sec. 23-7s-7w. Drlg. 3,525 ft.

Kay County

Malarnee Oil Co.'s No. 1 Harris, C SW NE Sec. 14-25-1. Drlg. 3,540 ft.

Zephyr Drlg. Co.'s No. 1 High, NE NW NW Sec. 24-26-2w. Miss. 4,005 ft.; Vla. 4,116 ft.; Wlx. 4,127 ft.; cg. ahead.

Kingfisher County

Anderson-Prichard's No. 1 Geis, C NE SW Sec. 15-18-9w. Lytn. 6,450-6,510 ft.; T.D. 8,507 ft.; P.B. 7,365 ft.; ga. 3,000,000 cu. ft. gas; est. 12 bbl. dist.; S.I.

Ace Gutowsky's No. 1 Lankford, NE NE SE Sec. 34-17-6w. Miss. 7,014 ft.; Woodford 7,531 ft.; Msnr. 7,562 ft.; Wlx. 8,105 ft.; 2nd Wlx. 8,275 ft.; T.D. 8,330 ft.; S.D.O.

Kiowa County

Bollen-Dillard & Roberts' No. 1 Holcomb, NE NE SW Sec. 25-7-19w. Drlg. 1,470 ft.

Frank Dillard et al's No. 1 Hobbs, SE SE NW Sec. 35-6-17w. Gr. wsh. 555 ft.; S.D. 600 ft.; reprs.

Hagerling et al's No. 1 Bozeman, SE SE NE Sec. 14-5-18w. T.D. 600 ft.; abd.

C. J. Hagerling's No. 1 Kimray, SW SW NW Sec. 36-5-18w. T.D. 1,592 ft.; S.D.

Lincoln County

Youngblood et al's No. 1 Wright, NE NE SE Sec. 32-16-6. W.O. tools 3,950 ft.

Black Gold's No. 1 Locquchment, NE NE NE Sec. 28-14-6. T.D. 3,175 ft.; est. 5 B.O.P.D.; S.D.

Harper & Turner's No. 1 Shaeffer, NW NW NW Sec. 6-16-2. Drlg. 4,152 ft.

Muskogee County

R. Garrett's No. 1 Escoe, SW SW SE Sec. 16-13-17. S.D. 968 ft.

Noble County

Franks & Ellis' No. 1 Stranka, SW SW NW Sec. 35-24-1w. T.D. 1,447 ft.

Okfuskee County

Shell's No. 1 Epperson,, NW NW SW Sec. 9-12-10. Fsg. 1,000 ft.

Osage County

W. M. McKnab's No. 1 Osage, NW NE SW Sec. 15-29-8. Drlg. 630 ft.

Midco Oil Co.'s No. 1 Osage, NE NE SW Sec. 17-22-8. S.D. 2,847 ft.

Pawnee County

W. H. Atkinson's No. 1 Wilkerson, NW NE NW Sec. 14-22-4. Drlg. 2,710 ft.

Payne County

Helmerich & Payne's No. 1 Berry, Sec. 14-17-6. T.D. 4,870 ft. in Wlx.; F. 220 B.O. in 12 hrs.

C. R. Hoagland's No. 1 Stanolind, SE SE SW Sec. 27-18-4. Miss. 3,800 ft.; T.D. 3,905 ft.; D.P. stk.

Pontotoc County

Crescent Oil Co.'s No. 2 Thompson, NE NW SW Sec. 29-3-4. Drlg. by at 216 ft.

Seminole County

P. J. McIntyre et al's No. 1 Campbell, SE NE SE Sec. 24-10-7. Cg. 3,505 ft.; rec. wtr.; T.D. 3,524 ft.

Wood Oil et al's No. 1 Crow, SE SE SE Sec. 31-8-6. Fsg. 3,000 ft.

Sequoyah County

Thompson Bros.' No. 1 Ruby, NW NW NE Sec. 30-12-22. Hntn. 1,451 ft.; T.D. 1,912 ft. (cor.); S.D.

Washita County

Continental Oil Co.'s No. 1 Proctor, C NW Sec. 28-10-20w. T.D. 14,582 ft.; S.D.

SOUTHERN OKLAHOMA

Atoka County

W. R. Holly's No. 1 Johnson, NW NW NE Sec. 36-3s-13. S.D. 105 ft.

Carter County

W. F. Turner's No. 1 Smith, NE SW SE Sec. 16-3s-1w. Drlg. below 3,625 ft.

Choctaw County

Clyde Ross et al's No. 1 Hardy, SE SE NW Sec. 21-7s-15. S.D. 1,722 ft.; (cor.).

Jackson County

Harper et al's No. 1 Thompson, SE SE SE Sec. 5-1s-21w. Drlg. sh. 3,115 ft.

Jefferson County

Fred Land et al's No. 1 Barrett, NE SE SE Sec. 14-6s-6w. Sd. 1,852 ft., S.O.; D. P., stk. at 1,100 ft.; T.D. 1,890 ft.; S.D.

Marshall County

Hughes et al's No. 1 Vittitto, C NE SE Sec. 11-5s-4e. O.W.D.D.; O.T.D. 7,100 ft.; T.D. 7,110 ft.; S.D.

Johnson et al's No. 1 Godfrey, SW SE NE Sec. 14-6s-6e. Vla. 2,627 ft.; S.S.O.; T.D. 4,455 ft. in sd.; S.O.; S.D.

Stephens County

Ray Johnson's No. 1 Baker, C SE NW Sec. 35-2s-6w. Open 15 min. and rec. 600 ft. wtr.; Arb. 1,939 ft.; T.D. 2,021 ft.; D.&A.

Tillman County

Magnolia Pet. Co.'s No. 1 Amyx, NW SE SE Sec. 17-3-16w. Stain oil 5,310 ft.; Vla. 5,110 ft.; T.D. 5,812 ft.; S.D.

KANSAS

Week Ended December 30 (Descrpiptions are East unless marked otherwise)

Barbour County

Patton Drlg. Co.'s No. 1 Hoss, C W½ NW SW Sec. 12-30-15w. Lans. 3,905 ft.; Miss. 4,410 ft.; Arb. 4,614 ft.; T.D. 4,760 ft.; D.&A.

Barton County

Brunson's No. 1 Wondra, CWL SW NE Sec. 15-17-12w. Drlg. 1,840 ft.

Crown Pet. Co.'s No. 1 Marchand, NE SE NW Sec. 13-20-11w. Drlg. 2,910 ft.

Duwe & Farris' No. 1-A Meggers, CEL SW Sec. 21-20-11w. Drlg. 2,800 ft.

Butler County

Allison & Talbott's No. 1 Zink, SE SE NE Sec. 32-29-5. Lost hole 2,710 ft.; T.D.; to skid rig.

Carey & Jennings' No. 1 Kelly, C SW Sec. 20-27-4. S.D. 2,660 ft.

Cromwell & Lewis' No. 1 Stern, NW NW NW Sec. 27-27-6e. M.I.M.

Davidson & Flack's No. 1 Wilhite, NE NE SW Sec. 16-27-7. S.D. 295 ft.

Natl. Ref. Co. No. 1 Lankford, SE SE NE Sec. 23-27-5. Drlg. 55 ft.

C. H. Pechin et al's No. 1 Hartenbower (O.W.D.D.), NW NW NW Sec. 16-29-6. O.T.D. 3,257 ft.; Peru sd. 2,476-2,530 ft.; S.D. 1,200 ft.

E. B. Shawyer's No. 1 fee, SE SE NW Sec. 26-29-4. T.D. 3,340 ft.; D.&A.

Cowley County

Garden's No. 1 Rahn, SW SW NW Sec. 13-34-5. Bart. 2,936 ft.; T.D. 3,425 ft., ln. Arb.; F. 120 B.O. 1st hr.; S.I.

Mission Oil's No. 1-A Hunt, SW SW NE Sec. 16-34-5. Drlg. 150 ft.

Mitchell Drlg. Co.'s No. 1 Ireton, C E½ SE NE Sec. 7-31-4. Arb. 3,298-3,304 ft., T.D.; D.&A.

Earl Wakefield's No. 1 Steel, C E½ SW SE Sec. 6-32-6. Miss. 3,107-14 ft., T.D.; D.&A.

Ellsworth County

W. N. Bartlett's No. 1 Janssen, SE SE SE Sec. 21-17-9w. Lans. 2,859 ft.; drlg. 2,967 ft.

Cities Service Oil Co.'s No. 1 Padlena ft.; S.O. 2,836 ft.; T.D. 3,113 ft.; acd. and P. 111 B.W. and no oil in 4 hrs.

Greenwood County

Chas. Barker's No. 1 Gregg, SW NW SE Sec. 35-25-12. (O.W.D.D.). O.T.D 660 ft.; drlg. 1,955 ft.

A. A. Hinze et al's No. 1 Hester, NW SW NE Sec. 1-22-12. S.D. 510 ft.

Jefferson County

E. W. Mosbacker et al's No. 1 McLaughlin, SW NE NW Sec. 4-10-20. Bart. 1,422-26 ft.; at 1,430 ft. est. 6,000,000 cu. ft. gas; Miss. 1,465 ft.; at 1,441 ft. ga. 6,500,000 cu. ft. gas; T.D. 1,915 ft.; S.D.

Johnson County

F. J. Kasper's No. 1 Kaths, SE SE NW

Sec. 33-13-22. T.D. 794 ft.; est. 500,000 cu. ft. gas; S.D.O.
McCain's No. 1 Doun, C SW NW Sec. 34-12-22. Fsg. 853 ft.

Kingman County

Skelly Oil Co.'s No. 1 Miller, CSL N½ NE Sec. 31-27-10w. Set 7-in. 4,067 ft.; R.U.S.T.

Lyon County

H. H. Royer's No. 1 Trear, Sec. 20-21-12. Miss. 1,996 ft.; H.F.W. 1,997-2,006 ft.; D.&A.

McPherson County

Central Pet.'s No. 1 Swanson C N½ NW NW Sec. 18-20-5w. Miss. 3,304-19 ft.; good sat.; R.U.S.T. 3,319 ft.
Tom Palmer's No. 1 Williams, CEL SE NE Sec. 32-19-5w. Vla. 3,867-74 ft., T.D.; N.S.; D.&A.
Westgate-Greenland's No. 1 Chindberg, C N½ NE SE Sec. 18-18-1w. S.S.O. 2,781-83 ft.; T.D. 2,795 ft.; 250 ft. O. I.H. in 12 hrs.

Marion County

Polhamus et al's No. 1 Noone, NW NW SE Sec. 18-18-3. Kans. City 1,680 ft.; U.R. 2,540 ft.
Troxwell et al's No. 1 Bezdek, NE SW SW Sec. 32-17-4. Drlg. 1,065 ft.

Montgomery County

Lerke & Whortan's No. 1 Clemmer, C SW SW Sec. 21-32-15. Arb. 1,530 ft.; set 5-in. csg.; W.O.C.

Pratt County

Skelly Oil Co.'s No. 1 Royse, C SW Sec. 9-28-11w. Lans. 3,604 ft.; Vla. 4,246-49 ft.; T.D. 4,268 ft.; S.S.O.; 802,000 cu. ft. gas.

Rice County

Mid-Plains Oil Co.'s No. 1 Newkirk, CSL SW SW Sec. 14-18-7w. C.O. 1,700 ft.
Saco Oil's No. 1 Habeger, SE SE SW Sec. 12-18-10w. Tpk. 2,494 ft.; Lans. 2,905 ft.; Arb. 3,249 ft.; T.D. 3,268 ft.; P. 12 B.O.P.H.
Vickers Pet. Co.'s No. 1-A Rodenberg, CNL NW¼ Sec. 8-18-10w. Lans. 2,930 ft.; Arb. 3,265-81 ft., T.D. N.S.

Rooks County

Broadview Oil's No. 1 Baxter, NE SW SW Sec. 35-8-16w. Lans. 3,180 ft.; S.S.O.; T.D. 3,623 ft.; P. 89 B.O. in 7 hrs.; pot. 269 B.O.P.D.

Russell County

Ray Shaffer et al's No. 1 Shaffer, NE NE SW Sec. 9-13-11w. S.D. 1,315 ft.

Sheridan County

Cities Service Oil Co.'s No. 1 McGinnis, SW SW NW Sec. 10-9-27w. Fsg. 4,409 ft.

Stafford County

Continental Oil Co.'s No. 1 Keller, SE SE SE Sec. 15-24-13w. S.O. 3,733-43 ft., cd. 4,111-16 ft. and rec. 5 ft. sat.; T.D 4,116 ft.; 3,900 ft. O.I.H.
Seaney & Ciampitt's No. 1 Brown, SW SW SE Sec. 1-21-13w. Cd 3,518-22 ft., T.D.; S.O. in cores 3,310-21 ft. and 3,532-44 ft.; T.D. 3,591 ft.; D.&A.
Shell Oil's No. 1 Smith, SE SE NW Sec. 9-21-11w. S.S.O. in core at 3,410-15 ft.; R.U.S.T. 3,415 ft.

Woodson County

Bird, Hanley & Sheedy's No. 1 Pingrey, C S½ SE Sec. 22-25-15. Spd.

MISSOURI

Adair County

J. W. Eddington et al's No 1-A Clark, NE NE SE Sec. 8-63-14w. Abd. at 200 ft., T.D.
Ward McGinnis' No. 1 Laughlin, SE SE SW Sec. 16-53-34w. Wlx 1,247 ft. Arb. 1,345-1,416 ft.; T.D. 1,623 ft.: D.&A.

Bollinger County

Deimund Oil's No. 1 Cooper, SE SE SE Sec. 14-29-9e. T.D. 1,850 ft.; S.D.

Buchanan County

Miller et al's No. 1 Carrough, C SE SE Sec. 24-57-35w. Miss. 1,201 ft.; H.F.W. 1,792-95 ft.

Butler County

Coastal Pet. et al's No. 1 Pierson, SW NE NW Sec. 27-22-6e. S.D. 149 ft.

Charlton County

L. E. Mummert et al's No. 1 Rickert, NW NE SE Sec. 26-54-20w. Loc.

Clay County

Pabelo Dev. Co.'s No. 5-A Robb, NW NW SE Sec. 36-52-32. T.D. 600 ft., S.G.; S.D.O.

DeKalb County

E. H. Lawhon et al's No. 1 Gottschall, C SE SE Sec. 18-59n-32w. Loc.
Geo. W. Moore's No. 1 McQuate, NE SW SW Sec. 11-57n-31w. Miss. 1,075 ft.; S.D. csg. 1,500 ft.

Holt County

Brin & Nathan's No. 1 Decker, C NW NW Sec. 1-61-38w. T.D. 1,030 ft.; S.D. for csg.

Jackson County

Hulse & Christopher's No. 1 Wiston, NE NW SE Sec. 22-49-32w. T.D. 510 ft.; shot in sd.; no incr.; may dpn.

Mercer County

Geo. W. Moore's No. 1 Moss, NW SW SE Sec. 30-65-24w. Hntn. 1,273 ft.; T.D. 1,879 ft.; fsg.

Knox County

W. H. Oberithier et al's No. 1 Campbell, C NE Sec. 18-61-12w. M.I.M.

Platte County

Missouri Valley G. & O. Co.'s No. 1 Jacks, SE cor. Sec. 7-51-33w. T.D. 935 ft.; P.B. 607 ft.; gas.
Roach-Vincent et al's No. 1 Dillingham, NE SW Sec. 16-53-34w. Ran 10-in. 890 ft.

Schuyler County

T. E. Baldwin's No. 1-A Johnson, NW NE NE Sec. 21-65-15w. Drlg. 940 ft.
Rogers & Morrow's No. 1 Seamster, C N½ SW SE Sec. 6-64-13w. Drlg. 800 ft.

Randolph County

A. A. Ash et al's No. 1 Alexander, C SE Sec. 14-55-13w. Loc.

Ray County

Loomis-Jordan's No. 1 Macey, NE SW NW Sec. 10-53-27w. S.O. 330 ft., T.D.; set csg.

ARIZONA

Cochise County

Funk Benevolent Corp.'s No. 1 fee, SE NE Sec. 27-13s-30e. Fsg. 6,668 ft.; S.S.G. &O.

Maricopa County

Ben Case's No. 1 Johnson, NE¼ Sec. 12-1s-5w. Loc.
Legco Drlg. Co. No. 1 Battles, SW SE Sec. 25-1n-4w. Loc.
Sam F. Reaves' No. 1 Fuqua, NW NW NE Sec. 34-1n-1w. S.D. 4,117 ft.
Sam F. Reaves' No. 1 King, SW SE Sec. 33-1n-4w. W.O. csg. 1,607 ft.
Peoples O. & G. Co. No. 1 Gardner, SE¼ Sec. 2-1n-3e. Drlg. 925 ft.

Pima County

R. W. Schenck's No. 1 Boyce, Sec. 22-19s-17e. S.D. 350 ft.

Yavapai County

Ari-Copa Drlg. & Mining Co.'s No. 1 Puntenney, SW¼ Sec. 27-18n-2w. S.D. 460 ft.
Chino Valley Oil Dev. Co.'s No. 1 State, Sec. 20-18n-2w. T.D. 1,130 ft.

Yuma County

Chas. T. Lark, Sec. 7-7s-14w. Loc.
Yuma Valley O. & G. Co. No. 1 Musgrove, N½ SW NW NE Sec. 11-11s-25w. Cd. 3,320-30 ft.; good S.O.&G.; prep. Drlg. 3,600 ft.

IOWA

Fremont County

Oscar Gruber's No. 1 fee, C SW SE Sec. 8-67n-40w. Base Ft. Scott 750 ft.; T.D. 1,065 ft.; S.D. for csg.

Guthrie County

F. E. Hunt et al's No. 1 McConnell, C SE SE Sec. 11-78n-30w. Drlg. 550 ft.

Union County

Phillips Pet. Co.'s No. 1 Creston, C SE NE Sec. 31-71-30w. U.R. 1,264 ft.

NEBRASKA

Cass County

Golden Rod Oil Co. No. 1 Sparer, SE SE SE Sec. 8-11-13e. S.D. 1,205 ft. in Vla. L.

Dakota County

Peder Skriver's No. 1 Armour, NE NE NE Sec. 33-28-8. T.D. 1,100 ft.; S.D.

Dawes County

G. E. Mitchell's No. 1 Palmer, NW NW SW Sec. 1-33-50w. (O.W.D.D.); O.T.D. 2,964 ft.; R.U. to D.D.

Fillmore County

Dan Kornfeld's No. 1 Mathis, NE NE NE Sec. 22-5-1w. Drlg. 1,996 ft.

Keith County

California-Nebraska Oil, Ltd.'s No. 1 Guststuehm, NW NW NW Sec. 21-14-37w. Dak. 2,772 ft.; S.O. 2,895-2,901 ft.; cd. 3,258-61 ft.; S.S.O.; S.D. 3,300 ft.

Pawnee County

Blaser & Hoerman's No. 1 Wilson, NE NW NW Sec. 4-1-10. S.S.O. 470-71 ft., T.D.; C.O. 350 ft.

Richardson County

Pawnee Royalty's No. 1 Boice, CSL N½ NE NE Sec. 18-1-16e. Hntn. 2,276 ft.; pmp. 230 B.O. in 24 hrs.; pmp. 122 B. O. 2nd 24 hrs.; T.D. 2,285 ft.; pumping 6 hrs. daily. avg. 60 bbl.; cmtd. 8-in. 2,279 ft.
Pawnee Royalty's No. 1 Myers, C NW NW Sec. 24-1-1s. Miss. 1,890 ft.; U.R. 1,890 ft.
Stephens & Uhrl's No. 1 Stauffer, SW SW NE Sec. 21-1n-13e. Rng. csg. 475 ft.

Scotts Bluff County

Albert Wood et al's No. 1 McHenry, SE NE NE Sec. 33-23-57w. T.D. 625 ft.; S.D.
J. A. Fairy Pet.'s No. 1 McCulley, C SE SE Sec. 35-23-58w. S.D. 2,035 ft.

ARKANSAS

Clark County

W. S. King's No. 1 N. Ross, 640 ft. S, 21. T.D. (cor.) 1,855 ft.; ran Schlumberger: W.O.
W. P. Wilson's No. 1 Hamilton & Mathews, C W½ NE NE Sec. 31-10s-20w. Run 10-in. csg. 41 ft.; T. Nac. 358 ft.; S.S.O.; reported S.O.&G. 437 ft.; S.D 1,650 ft.; W.O.

Columbia County

Arkansas Fuel Oil Co.'s No. 2-B King, C SE NW Sec. 21-17-20. 9⅝-in. csg. 2,198 ft.; cg. 7,632 ft.
Atlantic Ref. Co.'s No. 1-B Pine Woods Lbr. Co., C SE NW Sec. 16-18-22. Ctn. Vly. 6,490 ft.; T. por. L. 8,864 ft.; T.D. 8,880 ft.; set csg.; W.O.C.
Gulf Ref. Co.'s No. 1 Lewis, C SW NE Sec. 12-18-23. T.D. 6,830 ft.; T. Ctn. Vly. 6,688 ft.; making elec. survey.
J. K. Mahoney's No. 1 E. Riley, C NW NE Sec. 14-18-19. Reported S.O. 6,400-10 ft.; T.D. 8,240 ft.; T. por. L. 8,156 ft.; rng. tbg.
J. K. Mahoney's No. 2 E. Riley, C NE NE Sec. 14-18-19. R.U.
Normandie Oil Co.'s No. 1 C. E. Crumpler, C S 30 ac., SW SE Sec. 18-17-19. R.U.
Phillips Pet. Co.'s No. 1 Joiner unit, C SW NE Sec. 22-17-20. Set 9⅝-in. csg. 3,208 ft.; drlg. 5,260 ft.
Placid Oil Co.'s No. 1 Boothe Unit, C NE SE Sec. 10-17-19. Drlg. 5,380 ft.
Shell Oil Co., Inc.'s No. 1 Keith, C SE SE Sec. 9-18-22. 9⅝-in. csg. 2,265 ft.; T.D. 8,849 ft.; T. por. L. 8,826 ft.; rng. Schlmb.
Standard Oil Co. of La.'s No. 2 Booth, 660 ft. E, 560 ft. S, NW cor. SW SE Sec. 24-17-20. Drlg. sdy. sh. 3,480 ft.
Standard Oil Co.'s No. 4 Crone, C SW SE Sec. 8-16-22. Set 9⅝-in. csg. 2,075 ft.; T.D. 7,254 ft.; acd. and would not clean self; W.O. swbg. line.
Superior Oil Co.'s No. 1 Martel, C SW SW Sec. 10-18-22. Set 9⅝-in. csg. 4,107 ft.; drlg. 8,283 ft.
G. H. Vaughn's No. 1-C Jones, Sec. 22-17-20. Drlg. 4,260 ft.

Craighead County

Tennark. Inc., No. 1 R. M. Martin, SE cor. NE NE Sec. 35-14-3e. Drlg. 4,656 ft.

Lafayette County

East Texas Ref. Co.'s No. 1 E. P. Davis, C N½ NW NE Sec. 19-16-23. Set 10¾-in. csg. 116 ft.; T.D. 3,655 ft.
East Texas Ref. Co. et al's No. 1-C C Warren et al, C NE SE NW Sec. 24-16-24. Tstd. S.W. 3,504-24 ft.; P.B. 2,275 ft.; drld. to 2,345 ft.; 5½-in. csg. 2,323 ft.; swbd. dry; W.O.

Little River County

C. & M. Drlg. Co.'s No. 1 Strawn, NW cor. SE SW Sec. 17-10-32. T.D. 1,810 ft.; arng. to drill plug; 7-in. csg. cmtd. 1,590 ft.; S.D.

Miller County

W. C. Feazel's No. 1 Heflin, 455 ft. N. 350 ft. E. SW cor. frac. Sec. 17-20-27. T. por. L. 6,058-68 ft.; 5½-in. csg. 6,036 ft.; T.D. 6,115 ft.; acd. and swbd dry; reacd. and tstg.

Nevada County

O. T. Clark's No. 1 T. M. Bemis, 330 ft. NW cor. NW NE Sec. 23-10s-22. R.U. and S.D.

Ouachita County

Liberty Oil Co.'s No. 1 P. T. Hildebrand, 660 ft. S, 330 ft. W NE cor., SE Sec. 28-15-15, O.W.W.O., O.T.D. 4,934 ft. Perf. 2,780-84 ft.; small S.G.; hole full S.W.; cmtd. perf. 2,784 ft.
Sherry O'Brien's No. 2 Cooke est., 330 ft. SE cor. NW SW Sec. 27-15-18. Set 10-in. csg. 100 ft.; D.S.T.'s 2,219-29 ft. and 2,264-78 ft.; rec. S.W. and S.S.O.; S.D.; W.O. 2,278 ft.

Sevier County

R. A. McArthur's No. 1 Bell est., 20 ft. SE cor. SE SW Sec. 29-9s-32w. Set 12½-in. csg. 100 ft.; S.D. 575 ft.

Union County—Schuler

Lion Oil Co.'s No. 1 Land, 330 ft. NE cor. SW SE Sec. 13-18-18. Drlg. 5,310 ft.
Lion Oil Ref. Co.'s No. 7-B Morgan, 330 ft. NW cor. W½ SE Sec. 18-18-17. T. Jones sd. 7,546 ft.; T.D. 7,730 ft.; set 7-in. csg. 7,730 ft.; perf. 5,570-80 ft. and 5,592-98 ft.; swbd. S.W.: S.G.: sqzd.; drld. out and reperf.; tstg.
Phillips Pet. Co.'s No. 1 Goodwin, 330 ft. N, 660 ft. W, SE cor. Lot 1, Sec. 19-18-17. Set 13⅜-in. csg. 147 ft.; drlg. 5,860 ft.

Union County—Other

Barnsdall Oil Co.'s No. 1 Cameron, C SW SW Sec. 36-18-17. Set 13⅜-in. csg. 239 ft. (cor.); set 10¾-in. csg. 2,430 ft.; cd. 4,149-66 ft.; rec. 16 ft. 8 in. hd. sd., sl. odor gas: B. chalk 2,593 ft.: T. Tko. 3,061 ft.; T. Ctn. Vly. 6,205 ft.; fsg.
E. G. Bradham's No. 4-A H. C. McKinney, 306 ft. N, 660 ft. E, SW cor. SW SW Sec. 30-17-15. Hole 120° off: P.B 2,150 ft.; hole 11° off; abd. and skd 20 ft. N; set 10-in. csg. 100 ft.; T.D 2,167 ft.; set 7-in. csg. 2,167 ft.; W.O.
Delta Drlg. Co.'s No. 1 C. T. Grace, C SE SE Sec. 31-12-14. Set 10¾-in. csg. 815 ft.; T. Sur. L. 6,701 ft.; T. por. 6,708 ft.; S.W. 6,712 ft.; tstd. mud, S.W.&S.O. 6,701-27 ft.; T.D. 6,819 ft.; W.O.
Ruth S. Easley's No. 1 J. M. Davis, C SE NW Sec. 28-16-14. R.U.
Lion Oil Ref. Co. No. 9-A Hays, Sec. 4-16-15. O.W.W.O.; O.T.D. 7,255 ft.; P.B. 2,325 ft.; rpd. csg. 2,276-80 ft.; S.O.; pmpd. est. 700 B.P.D. S.W.; S.S.O.; arng. recmt. 2,325 ft.; W.O.C.
Ouachita Union Oil Corp.'s No. 1 Ramsey est., 330 ft. NE cor., SE NW Sec. 26-17-14. Set 10-in. csg. 107 ft.; T.D. 3,032 ft.; set whpstk. to sdtrk. fish.
Oil Prod., Inc.'s No. 1 Moore, C SE SE Sec. 1-17s-14w. T. Crain sd. 3,043 ft.: S.D. 3,066 ft.; W.O.

FLORIDA

Baker County

Swift Creek Oil Co.'s No. 1 Howell Turpentine Co., approx. C Sec. 15-4s-19e. Drk.

Dade County

Wm. G. Blanchard et al's No. 1 Everglades, 200 ft. E, 100 ft. N, SE cor. Sec. 31-53s-35e. R.U.

Levy County

Florida Oil Discovery Co.'s No. 2 Cedar Key, SW SW NE Sec. 9-15s-13e. T.D. 5,266 ft.; W.O. heavier rig.
Harkey & Houck's No. 1 Crapps, Sec. 15-14s-17e. Drlg. 910 ft. No report.

Nassau County

St. Mary's River Oil Corp.'s No. 1 Hillard Turpentine Co., NW cor. NW SE Sec. 19-4n-24e. Reported S.O. 4,795-4,810 ft.; drlg. 4,815 ft.

Suwannee County

Wm. G. Blanchard et al's No. 1 Lucy Cotton, 774 ft. N, 153 ft. W, SE cor. NE Sec. 35-3s-11e. S.D. 184 ft.
J. W. Phillips Oil Expltn. Co.'s No. 1 Shilkett, NW NW Sec. 14-4s-14e. S.D. cor. T.D. 369 ft.

MISSISSIPPI

Attala County

F. R. Jackson's No. 1 Federal Ld. Bnk., C SW Sec. 29-16n-9e. Loc.
Kosciusko Oil Co.'s No. 1 Jones, 600 ft. NW cor. Sec. 5-15n-9e. Loc.
P. & M. Oil Co.'s No. 1 J. A. McMillin, 300 ft. SW cor., SE SE Sec. 26-13n-5e. Drk.

Chickasaw County

Jeva Winters' No. 1 W. C. Flaherty, SE cor. SE SW Sec. 8-13s-3e. Loc.

Choctaw County

Garland Anthony et al's No. 1 Ballard, SE cor. Sec. 8-18n-1e. T.D. 22 ft.; S.D.

Copiah County

Triangle Drlg. Co.'s No. 1 W. W. Broome, 153 ft. SW cor. SW SE Sec. 1-10n-8e. T.D. 15 ft.; W.O. heavier rig.

Hinds County

Byrd-Frost et al's No. 1 Gaddis Farms, 275 ft. SE cor. SE SE Sec. 12-6n-3w. T. Eutaw 6,337 ft.; cd. 6,337-42 ft.; rec. 2 ft. bl. sh.; T.D. 6,342 ft.; D.&A.

Itawamba County

G. C. Grasty et al's No. 1 Ky. Lbr. Co., 1,320 ft. E, 660 ft. S, C Sec. 7-10s-10e. Twisted off D.S.; skd. 24 ft. S and end.: set 10¾-in. csg. 170 ft.; S.O. 1,500 ft.; T. Trenton L. 1,690 ft.; T.D. 1,794 ft.; S.D.; R.U.C.T.

Issaquena County

E. B. Germany et al's No. 1 J. C. Mohanna. Sec. 13-18n-3e. 10-in. csg. 157 ft.; T.D. 256 ft.; spd. and abd.
W. E. Hall's No. 1 Irby Charping, approx. C NE NW Sec. 29-10n-8w. Drk.
Locke & Mellard's No. 1 W. Gary, 660 ft. SE cor., NW Sec. 14-9n-6w. Loc.

Jefferson Davis County

F. E. Courson et al's No. 1 L. J. Bailey, 330 ft. SW cor. SW NE Sec. 4-6n-18w. Spd.; S.D.

Kemper County

M. R. Crabb et al's No. 1 W. T. Caldwell, NW SE Sec. 25-9n-15w. 10¾-in. csg. 86 ft.; set 6-in. csg. 1,320 ft.; T.D 1,640 ft.; bailed dry; arng. acd.

Lamar County

Miss.-La. Oil Synd.'s No. 1 Simmons, 1,020 ft. N, 56 ft. W, SE cor. NE Sec. 32-3n-14w. S.D. 1,100 ft.

Monroe County

Willmut G. & O. Co.'s No. 1 Roberts, NW¼ Sec. 18-13s-17w. Drlg. sdy. sh. 2,216 ft.

Pike County

S. R. Crouch's No. 1 Cupit, 360 ft. N 660 ft. W, SE cor. NE SW Sec. 25-2n-7e. Set 6-in. csg. 729 ft.; S.D. 1,130 ft.

Prentiss County

Home Dev. Co.'s No. 1 Mrs. A. Allen Sec. 8-7s-9e. T.D. 1,527 ft.; S.D.

Rankin County

Wilmut G. & O. Co.'s No. 1 Boehle, NE NW Sec. 8-5n-2e. Set 10¾-in. csg. 75 ft.; set 7-in. csg. 2,460 ft.; comp.; 25,000,000 cu. ft. gas; T.D. 2,461 ft.

Sharkey County

Chas. W. Crader's No. 1 D. D. Wells, 600 ft. N, 860 ft. W, SE cor. NW Sec. 27-12n-7w. Drlg. bl. sh. 3,352 ft.

Ralph E. Fair's No. 1 W. B. Houston est., NE NE Sec. 12-10n-7w. Set 10-in. csg. 854 ft.; drlg. ahd.

Simpson County

Cleve Love No. 1 N. E. Gardner, SW cor. SW NE Sec. 1-10n-17w. S.D. 3,180 ft., Wlx.; R.U.; to D.D.

Warren County

H. C. Cummings et al's No. 1 T. H. Morrissey, C E½ W½ NE Sec. 8-17n-2e. T.D. 39 ft.; S.D.; wtr.

Yazoo County

Conroe-Wilcox's No. 1 Stubblefield, Sec. 25-12-1w. Set 10¾-in. csg. 1,373 ft.; T. Wlx. 1,760 ft.; T.D. 6,000 ft.; resumed drlg.

Harry Hanbury et al's No. 1 Brooks, SW Sec. 17-10-2. Loc.

Hassie Hunt's No. 1 J. C. Johnson, C SE SE Sec. 11-10-3. Spd.

Hassie Hunt's No. 2 J. C. Johnson, C NE SE Sec. 11-10-3. Spd.

Hill & Hill et al's No. 1 Kinkead Plantation, 1,796 ft. SE cor. NE¼ Sec. 31-11-3. Drk.

Edgar Johnson et al's No. 1 Broomfield, SE SE Sec. 2-10-3. Set 10¾-in. csg. 1,471 ft.; drlg. bl. sh. 4,340 ft.

Jones & O'Brien's No. 2-B Stevens, C NW SW Sec. 12-10-3. 10¾-in. csg. 1,503 ft.; Wdrff. sd. 4,396-4,405 ft.; cg.

Plains Prod. Co.'s No. 1 Milner, 546 ft. N, 660 ft. E, SW cor. SW SW Sec. 7-10-2. Set 10¾-in. csg. 1,470 ft.; drlg. clk. 4,860 ft.; T. clk. 4,780 ft.

Fullwood Purifoy's No. 1 O'Neal, 660 ft. N, 300 ft. W, SE cor. SW¼ Sec. 22-10-3. Loc.

R. B. Sanders' No. 1 E. W. Milner, 369 ft. S, 330 ft. E, NW cor. Sec. 18-10-2. Loc.

T. B. Slick's No. 1 W. S. Atkinson, 625 ft. S., 556 ft. E, NW cor. NW NE SW Sec. 3-10n-3w. No Woodruff sd.; T. Eutaw 4,638 ft.; cd. sh. 4,908-21 ft.; sdy. sh. 4,921-53 ft.; T.D. 5,083 ft.; no S.O.; D.&A.

Union Prod. Co.'s No. 2 Perry, C NE NW Sec. 24-10-3. Drk.

Union Prod. Co.'s No. 1 Stevens, C NW NW Sec. 13-10-3, O.W.W.O., O.T.D. 6,112 ft. P.B. 4,973 ft.; set 1st retainer 1,820 ft.; perf. 4,808-10 ft.; 2nd retainer 4,898 ft.; recomp.

Union Prod. Co.'s No. 2 J. Stevens, C NW NE Sec. 13-10-3. 10¾-in. csg. 1,499 ft.; set 7-in. csg. 4,487 ft.; washing; T.D. 4,561 ft.

Union Producing Co.'s No. 3 Stevens, C NE NW Sec. 13-10-3. R.U.

Union Producing Co.'s No. 3 Woodruff, C SE NW Sec. 13-10-3. Comp. 560 B. P.D.; 22/64-in. ck.; C.P. 20 lb.; T.P. 0; 7-in. csg. 4,560 ft.; Wdrff. sd. 4,570-88 ft.; T.D. 4,594 ft.

Union Prod. Co.'s No. 4 Woodruff, C NW SE Sec. 13-10-3. 10¾-in. csg. 1,502 ft. (cor.); D.S.T. 4,700-24 ft.; rec. 2,000 ft. oil in 10 min.; ⅝-in. ck. T.&B.; cg. 4,771 ft.

Yazoo Refinery, Inc.'s No. 1 Frank Brooks, W½ SE NW Sec. 17-10-2w. Set 16-in. csg. 118 ft.; S.D.

LOUISIANA

N. LOUISIANA WILDCATS

Bienville Parish

Harry Hanbury's No. 1 Holson, Sec. 29-18-6. M.I.M.

Bossier Parish

Cary & Gibson's No. 3-A Connell, 216 ft. S, 173 ft. W, NE cor. SE SE Sec. 15-19-11. Drlg. 40 ft.

Gulf Ref. Co.'s No. 20 C. B. Hodges, 3,131 ft. N, 1,388 ft. W, SE cor. Sec. 24-16-12. T. Pett. L. 5,298 ft.; T. Travis Pk. 5,590 ft.; T.D. 7,689 ft.; fsg. D.S.

Premier Inv. Co.'s No. 7-C Kendrick, 150 ft. N, 585 ft. E, SW cor. SE Sec. 22-19-11. T. sd. 329 ft.; set 10-in. csg. 307 ft.; tstd. dry; S.O. 338 ft.; set 7-in. csg. 811 ft.; acd. with 3,000 gal.; tstd. S. W.; S.O.; W.O.

Triangle Drlg. Co.'s No. 5-A Herold, 334 ft. E, 333 ft. S, NW cor. Sec. 13-17-12. Drlg. 250 ft.

Union Prod. Co.'s No. 1-A Herold, 1,326 ft. S, 1,322 ft. W, NE cor. Sec. 29-17-11. Set csg. 5,335 ft.; perf. 5,070-5,115 ft.; flwd. 30,000,000 to 40,000,000 cu. ft. gas; C.P. 1,950 lb.; T.P. 1,700 lb.; C.I.

Caddo Parish

Ark. Fuel Oil Co.'s No. 7 Offenhauser, 653 ft. N, 100 ft. W, SE cor. NE SW Sec. 1-20-16. Drlg. 1,025 ft.

Burnham Drlg. Co.'s No. 3 Wilkinson, 990 ft. S and E, C Sec. 33-22-16. Set 7-in. csg. 2,446 ft.; T.D. 2,457 ft.

Hugh Carney's No. 1 Burton, 2,279 ft. S, 773 ft. W, NE cor. NW Sec. 1-20-16. R.U.

D. T. Cauble's No. 1 Darnell, Sec. 17-22-16. Set 10-in. csg. 80 ft.; drlg. sh. 1,257 ft.

Mrs. O. P. Clements' No. 2-B Caddo Lv. Bd., Sec. 5-20-16. T. sd. 1,860 ft.; rep. rig 1,890 ft.

Roy T. Davis' No. 1 Hanner, 150 ft. E, 60 ft. N, SW cor. NW SE Sec. 1-20-16. R.U.

T. B. Donnell's No. 1 Surrey Oil Co., 2,970 ft. S, 2,475 ft. W, NE cor. Sec. 12-20-16. Set 7-in. csg. 1,343 ft.; T.D. 1,535 ft.; acd. with 3,000 gal.; set 5½-in. csg. 2,124 ft.; T.D. 2,276 ft.

H. H. Groneman's No. 1-A Browning, 380 ft. N, 280 ft. E, SW cor. Sec. 22-22-16. R.U.

Holcomb & Thomason's No. 1 Butler, 740 ft. S, 330 ft. E, NW cor. NE¼ Sec. 23-22-16. Set 10-in. csg. 157 ft.

C. C. Lowery's No. 1 Huckaby, 890 ft. S, 990 ft. E, C Sec. 7-20-15. Set 10-in. csg. 60 ft.; S.D. 1,265 ft.; rep. rig.

C. H. Lyons' No. 1 Bluestein, 548 ft. S, 260 ft. E, C Sec. 35-18-14. Drlg. 3,026 ft.

C. H. Lyons' No. 1 Bostwick, 1,620 ft. N, 1,080 ft. E, SW cor. Sec. 13-22-16. Set 10-in. csg. 106 ft.; no sd.; W.O. 2,710 ft.

McDonald & Campbell's No. 6-A Natalie, 1,840 ft. W, 1,630 ft. N, SE cor. Sec. 10-20-15. Drlg. 1,200 ft.

McDonald & Campbell's No. 6-A Natalie, Sec. 10-20-15. Set 5½-in. csg. 2,176 ft.; T.D. 2,196 ft.; W.O.C.

Magnolia Pet. Co.'s No. 28 Dillon hrs., Sec. 24-21-15. 10¾-in. csg. 39 ft.; bailing 1,677 ft.

E. E. Marr's No. 1 Brown, Sec. 11-20-16. Set 10-in. csg. 100 ft.; drlg. sh. 820 ft.

J. F. Mechem's No. 2 Crystal fee, 400 ft. S, 640 ft. W NE cor. Sec. 14-21-16. Set 8-in. csg. 1,012 ft.; tstd. dry; W. O. 1,040 ft.

R. S. M. Oil Co.'s No. 1 Rudderdorf, 1,180 ft. S, 520 ft. W, NE cor. NW Sec. 11-20-16. Set 6⅝-in. csg. 1,400 ft.; acd. and tstg. 1,602 ft.

Riggs & Lester's No. 2-A Seybert, 218 ft. N, 4,242 ft. E, C Sec. 17-20-15. Set 5⅛-in. 1,338 ft.; T.D. 1,640 ft.; will acd.

L. R. Skidmore's No. 1 Landau, 150 ft. N, 220 ft. E, SW cor. Sec. 1-20-16. R.U.

Southern O. & G. Co., Inc.'s No. 1 Muslow, 1,654 ft. S, 573 ft. W, NE cor. NW Sec. 5-20-15. Tstd. S.O.; drlg. 1,477 ft.

Stanolind O. & G. Co.'s No. 1, 131 Dillon hrs., C SE NE Sec. 14-21-15. Ran Schmb. 9,109 ft.; T. Smkvr. L. 8,952 ft.; ran Schlum. 10,164 ft.; T. cap rock 10,148 ft.; igneous rock 11,419 ft.; T. salt 10,159 ft.; base salt 11,405 ft.; T.D. 11,419 ft.; P.B. to 9,981 ft.; drld. cmt. and rpd. csg. 6,946-63 ft.; D.S.T. 6,920-63 ft.; 42 min.; rec. 15 stands; drlg. mud and S.S.O.; set ret. 6,940 ft. and sqzd. off; tstd. dry; ripped csg. 6,943-7,060 ft.; tstg.

Sultana Drlg. Co.'s No. 2-A Bain, 480 ft. S, 660 ft. E, C Sec. 4-23-15. Drlg. 4,500 ft.

Temple Oil Co.'s No. 4 Bostwick, 230 ft. S, 323 ft. W, NE cor. SW SW Sec. 13-22-16. Spd.

Temple Oil Co.'s No. 5 Bostwick, 330 ft. N, 223 ft. E, SW cor. NE SW Sec. 13-22-16. 10¾-in. csg. 105 ft.; drlg. ahd.

Jack Terrell's No. 1 Welch, Sec. 3-20-16. Will set csg. 947 ft.

Texas Co.'s No. 10 Ellerbe fee, Sec. 15-21-16. Drlg. 1,018 ft.

Texas Co.'s No. 1 Guy, Sec. 1-20-16. Set 8-in. csg. 1,344 ft. (cor.); tstg. 1,480 ft.

Texas Co.'s No. 2 Guy & Richardson, 2,838 ft. N, 1,276 ft. W, SE cor. Sec. 1-20-16. Tstg. 1,491 ft.

Alf Tillman's No. 1 Greer, 50 ft. N, 60 ft. W, SE cor. NW NW Sec. 12-20-16. Drlg. sh. 913 ft.

Travis & Red Iron Drlg. Co.'s No. 2 Chandler, Sec. 5-23-15. Drlg. 2,586 ft.

W. & W. Oil Co.'s No. 3 Ark. Fuel Oil, 787 ft. S, 5 ft. E, NW cor. Sec. 12-20-15. Cg. 1,356 ft.

Whitehurst Drlg. Co.'s No. 1 Shreveport Pet. Co., 990 ft. W, 493 ft. N, SE cor. Sec. 2-20-16. R.U.

Ivan Wright's No. 1 Neel est., Sec. 12-20-16. R.U.

Caldwell Parish

Critchett & Woods' (formerly E. T. Oakes') No. 1 Kyles, NE cor. SW NE Sec. 18-11-3e. T.D. 4,975 ft.; D.S. stk.; lub. with 100 bbl. oil.

De Soto Parish

N. W. Hunter's No. 1 Anders-LeBlanc, C NW SE Sec. 5-11-14. Set 10-in. csg. 590 f.; D.ST. 1,954-74 ft.; rec. 150 ft. mud, 25 min.; S.S.O.; S.G. tried to blow out; twisted off 2 jts. D.S. while cond. mud; fsg. D.S. 4,818 ft.

Dewey Jaun's No. 1 Frost Lbr. Ind., 6,600 ft. SE cor. SW Sec. 14-22-3e. Set 10-in. csg. 545 ft.; drlg. sh. 1,710 ft.

La Salle Parish

Georgetown Oil Co.'s No. 3 Baldridge, 660 ft. S, 650 ft. E, NW cor. NE NW Sec. 11-9-1e. Set 5½-in. csg. 1,503 ft.; T.D. 1,509 ft.; W.O.S.R.

H. L. Hunt and Ark. Fuel Oil Co.'s No. 1 Goodpine Lbr. Co., C NW NW Sec. 18-10n-3e. Fsg. 3,030 ft.; blew out and bridged at 1,200 ft.

W. B. Jarvis' No. 2-A Montague, 530 ft. S, 270 ft. E, NW cor. Sec. 11-9-1e. Cg. 1,496 ft.

Morehouse Parish

Union Prod. Co.'s No. 1-A Tensas-Delta, 1,894 ft. W, 1,584 ft. S, NE cor. SE Sec. 8-22-4. Set 20-in. csg. 125 ft.; 16-in. csg. 712 ft.; set 10¾-in. csg. 2,448 ft.; T. salt 8,114 ft.; drlg. sh. 10,340 ft.

Natchitoches Parish

Jack Lent et al's No. 1 Walker, C NE NE Sec. 9-10-10. 10-in. csg. 63 ft.; reported small S.O. 2,018 ft.; D.S.T. 2,007-18 ft.; rec. 32 jts. S.W.; S.D.

Sabine Parish

Ed Bailey's No. 1 Hale, 330 ft. NW cor. NE NW Sec. 6-7-12. S.D. 1,960 ft.

John Derryberry et al's No. 1 Manton, 330 ft. NE cor. NW SW Sec. 34-7-13. 10-in. 62 ft.; drlg. sh. 2,360 ft.

Hayner et al's No. 1 Sabine, 330 ft. N, 497 ft. W, SE cor. Sec. 13-7-12. Set 10-in. csg. 58 ft.; 7-in. csg. 2,455 ft.; W.O.C.

M. Lanza's No. 1 Phares, 330 ft. SE cor. NE SE Sec. 5-5-12. Drlg. 2,635 ft.

N. B. Livingston's No. 1 Bowman Hicks, 660 ft. SE cor. SW Sec. 36-9-14. Set 10-in. csg. 110 ft.; D.S.T. 3,125-59 ft.; ¼-in. cks. T.&B.; 35 min.; rec. 150 ft. mud and S.G.; rng. 5½-in. csg. 3,431 ft.

Major Oil Co.'s No. 1-B Sabine, 330 ft. NW cor. NW NE Sec. 8-7-13. 7-in. csg. 2,071 ft.; T.D. 2,505 ft.; tstg.

B. F. Phillips' No. 1 Blankenship, 330 ft. S, 202 ft. W, NE cor. SE NW Sec. 13-9-12. Drlg. 3,276 ft.

W. L. Posey's No. 1 Rivers, C NW NW Sec. 26-8-13. 6-in. csg. 2,147 ft.; T.D. 2,150 ft.; T. clk. 2,145 ft.; tstd. S.O. and acd. with 3,000 gal.; tstd. S.O. 2,515 ft.; dpnd. and tstg. 2,580 ft.

Relrue Oil Co.'s No. 1 Sabine, SE cor. NE SE Sec. 8-7-13. 6-in. csg. 2,061 ft.; T.D. 3,547 ft.; P.B. 2,350 ft.; acd. with 3,000 gal. and tstg.

Claude H. Smith's No. 1 Whitney Corp., 330 ft. N and E, C Sec. 24-10-14. Set 10-in. csg. 42 ft.; S.D.

Texas Co.'s No. 3-B Glauque, 660 ft. S and E, C Sec. 10-7-13. Ran csg. 2,114 ft.; W.O.C.

K. H. Thomas' No. 1 Long Bell, 330 ft. SW cor. NE SE Sec. 5-8-13. Drlg. 1, 410 ft.

Lee Whitehurst's No. 1 Summers, 1,210 ft. N, 440 ft. W, SE cor. NE Sec. 14-7-13. Set 6-in. csg. 3,131 ft.; tstg.

Union Parish

Memphis Nat. Gas Co.'s No. 7 Frost Lbr. Ind., Sec. 22-22-3. Spd.

Memphis Nat. Gas Co.'s No. 1 Taunton, Sec. 11-21-3. Set 8-in. csg. 768 ft.; set 6-in. csg. 2,130 ft.

United Carbon Co.'s No. 1 McKinney, Sec. 14-22-3. Set 6-in. csg. 2,108 ft.; W.O.C.

United Carbon Co.'s No. 1 Reppond, Sec 14-22-3. Set 8-in. csg. 745 ft.; set 6-in. csg. 2,098 ft.; tstd. S.W. 2,380 ft.; arng. P.B.

We Hope Gas & Oil Co.'s No. 8 Frost Lbr. Ind., Sec. 23-22-3. Set 6-in. csg. 2,081 ft.; tstg. 2,150 ft.

H. L. Woods, Tr.'s No. 2 Union Power, Sec. 29-21-3. Set 12-in. csg. 158 ft.; drlg. 1,810 ft.

Webster Parish

Hassie Hunt's No. 2 Coyle, C SW SE Sec. 22-21-10. Drlg. sh. 6,055 ft.

Hassie Hunt's No. 1 Holloway-Davis, 560 ft. N, 660 ft. W, C Sec. 23-21-10. Hllwy. sd. 5,540-56 ft. and 5,820-36.; 5½-in. csg. 5,818 ft.; T.D. 5,900 ft.; W.O.C.

Hunt Oil Co.'s No. 3 Stewart, C NE NW Sec. 29-21-10. Drlg. 8,770 ft.

Hunt Oil Co.'s No. 4 Stewart, 480 ft. S, 835 ft. E. NW cor. SW Sec. 32-21-10. Drlg. 8,645 ft.

Quad Oil Co.'s No. 1 Gray, 735 ft. N, 600 ft. W, SE cor. Sec. 27-21-10. Drlg. 1,260 ft.

Stanolind O. & G. Co.'s No. 4 Pardee, 660 ft. SE cor. Sec. 25-21-10. T. Tr. Pk. 5,829 ft.; 9⅝-in. csg. 5,950 ft.; T.C.V. 7,986 ft.; D sd. 8,410-26 ft. (oil); drlg. 8,452 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co.'s No. 1 David Meaux, Sec. 9-12s-3e. T.D. 11,359 ft.; T. gas sd. 11,318 ft.; D.S. stk.; P.B. and sidetracked; drlg. sh. 11,560 ft.

Continental Oil Co.'s No. 1 DeMary, Sec. 17-12s-3e. Drlg. sh. 6,530 ft.

Continental Oil Co.'s No. 1 Franciol, Sec. 67-12s-3e. Drk.

Continental Oil Co.'s No. 1 Motty, Sec. 18-12s-3e. Drlg. sh. 9,070 ft.

Anse La Butte—St. Martin Parish

Glassell & Glassell's No. 1 Breauy, Sec. 117-9s-5e. Drlg. sdy. sh. 4,675 ft.

Bancroft—Beauregard Parish

Republic Prod. Co.'s No. 12 Columbia Ld. & Tmbr. Co., Sec. 15-6s-13w. T.D. 7,323 ft.; 5½-in. csg. 7,318 ft.; I.P. 289 B.P.D.; ⅛-in. ck.

Republic Prod. Co.'s No. 13 Columbia Ld. Co., Sec. 15-6s-13w. Drlg. sd. 7,330 ft.

Republic Prod. Co.'s No. 1 Franks, Sec. 15-6s-13w. T.D. 7,320 ft.; I.P. 262 B.P. D.; ⅛-in. ck.

Republic Prod. Co.'s No. 4 Lutcher Moore, Sec. 16-6s-13w. T.D. 7,374 ft.

Republic Prod. Co.'s No. 2 Nettie Smith, Sec. 15-6s-13w. Drlg. sh. 6,733 ft.

Republic Prod. Co.'s No. 2 Whitman, Sec. 15-6s-13w. Loc.

Barataria—Jefferson Parish

Carter, Perrin & Brian's No. 1 Ruttley Wiseman, Sec. 2-16s-23e. Loc.

Geo. Conover's No. 1 Conover Community, Sec. 22-15s-23e. Loc.

Fohs Oil Co.'s No. 1 Conzelman, Sec. 22-15s-23e. Loc.

Bateman Lake—St. Mary Parish

Texas Co.'s No. 3 State, Sec. 16s-12e. Loc.

Texas Co.'s No. 3 Wax Bayou, Sec. 21 16s-12e. Drlg. sh. 4,560 ft.

Texas Co.'s No. 4 Wax Bayou, Sec. 21-16s-12e. Drlg. sh. 1,910 ft.

Baton Rouge—East Baton Rouge Parish

Guaranty Oil Co. No. 2 Morgan, Sec. 65-7s-1w. T.D. 6,530 ft.; 5½-in. csg. 6,450 ft.; swbd. S.W.; S.D.

Wm. Hells' No. 1-C Duplantier, Sec. 45-7s-1e. T.D. 6,502 ft.; 7-in. csg. 6,492 ft.

Lisbon Iberia Oil Co.'s No. 2-A College Town Community, Sec. 68-7s-1w. T.D. 6,526 ft.; 7-in. csg. 6,514 ft.

Lisbon-Iberia Oil Co.'s No. 2 University Hills, Sec. 68-7s-1w. T.D. 6,498 ft.; 7-in. csg. 6,486 ft.

Sugarfield Oil Co.'s No. 1 Kizer Community, Sec. 46-7s-1e. 10¾-in. csg. 1,415 ft.

Titanic Oil Co.'s No. 1 Dennis, Sec. 70-7s-1w. Drlg. sh. 1,743 ft.

Bay St. Elaine—Terrebonne Parish

Texas Co.'s No. 3 L.L.&E., Sec. 18-22s-18e. Loc.

Bayou Blue—Iberville Parish

Superior Oil Co.'s No. 1 Schwing Lbr. Co., Sec. 74-9s-10e. Bldg. rd.

Bayou Choctaw—Iberville Parish

Standard Oil Co. of La.'s No. 12 Wilbert, Sec. 53-9s-11e. T.D. 3,085 ft.; run 10¾-in. csg.

Bayou Des Allemand—La Fourche Parish

Amerada Pet. Corp.'s No. 3 Gheens, Sec. 56-15s-20e. Drlg. sdy. sh. 7,502 ft.

Bayou des Glaise—Iberville Parish

Humble O. & R. Co.'s No. 2-B Wilberts, Sec. 78-8s-8e. R.U.

Black Bayou—Cameron Parish

Shell Oil Co., Inc.'s No. 43 Watkins, Sec. 7-12s-12w. Cg. sh. 5,465 ft.

Caillou Island—Terrebonne Parish

Texas Co.'s No. 12 State, Sec. 20-23s-20e. T.D. 4,982 ft.; sdtrkd.; T. salt 6,228 ft.; T.D. 6,236 ft.; P.B. 5,006 ft.; sdtrk.; drlg. sh. 5,794 ft.

Cameron Meadows—Cameron Parish

Magnolia Pet. Co.'s No. 26 Cameron Meadows, Sec. 21-14s-13w. Drlg. sh. 820 ft.

Chacahoula—La Fourche Parish

Sun Oil Co.'s No. 1 Cypress, Sec. 75-15s-15e. 13⅜-in. csg. 1,842 ft.; T. salt 6,072 ft.; T.D. 6,088 ft.; P.B. 2,100 ft., sdtrkd.; T.D. 6,553 ft.; fsg.; sdtrkd.; T.D. 5,544 ft.; P.B. to sdtrk.; drlg. sd. 7,208 ft.

Sun Oil Co.'s No. 6 Dibert, Stark & Brown, Sec. 70-15s-15e. Drlg. rk. 7,007 ft.

Chalkley Field—Cameron Parish

Humble O. & R. Co.'s No. 1 Cameron Sch. Bd., Sec. 16-12s-6w. Loc.

Humble O. & R. Co.'s No. 5 K. B. Hanzen, Sec. 9-12s-6w. T.D. 8,651 ft.; run 7-in. csg.

Humble O. & R. Co.'s No. 6 Sweet Lake Ld. & O. Co., Sec. 8-12s-6w. Drlg. L. 6,360 ft.

Shell Oil Co., Inc.'s No. 5 Hanzen, Sec. 21-12s-6w. T.D. 8,955 ft.; I.P. 957 B.P. D.; 16/64-in. ck.

Shell Oil Co., Inc.'s No. 6 Hanzen, Sec. 21-12s-6w. Drlg. sh. 1,656 ft.

Union Sulphur Co.'s No. 1 Sweet Lake Ld. Co., Sec. 13-12s-7w. Loc.

Cheneyville—Rapides Parish

Gulf Oil Corp.'s No. 2-A C. J. Pope, Sec. 4-1s-2e. T.D. 5,788 ft.; abd.

S. W. Richardson's No. 7 Well, Sec. 53-1s-2e. T.D. 5,800 ft.; perf. csg. 5,684-5,712 ft.; I.P. 292 B.P.D.; ⅛-in. ck.

S. W. Richardson's No. 8 Well, Sec. 35-1s-2e. R.U.

Creole—Cameron Parish

Superior Oil Co.'s No. 9 State, Gulf of Mex., Twp. 15s-8w. T.D. 5,589 ft.; sidetracked; 7-in. csg. 6,949 ft.; T.D. 6,950 ft.; perf. csg. 6,901-03 ft.; I.P. 13 bbl. 1st 7 hrs.; 11/64-in. ck.

Darrow—Ascension Parish

Humble O. & R. Co.'s No. 28 Community, Sec. 30-10s-2e. R.U.

Humble O. & R. Co.'s No. 29 Community, Sec. 30-10s-2e. Loc.

Humble O. & R. Co.'s No. 17 Gumbel, Sec. 36-10s-2e. T.D. 8,570 ft.; rmg.

Kiva Oil Co. No. 1 Duplessis, Sec. 60-10s-2w. S.D. 2,523 ft.

Dog Lake—Terrebonne Parish

Texas Co.'s No. 10 State, Sec. 1-22s-15e Drlg. sdy. sh. 1,923 ft.

Edgerly—Calcasieu Parish

Sutton-Burton Joint Acct.'s No. 1 J. H Embry, Sec. 29-9s-11w. T.D. 5,990 ft.; abd.

Eola—Avoyelles Parish

Amerada Pet. Corp.'s No. 1 Dentetal unit, Sec. 1-2s-2e. Loc.

Amerada Pet. Corp.'s No. 1 L. B. Dent Sec. 10-2s-2e. T.D. 8,570 ft.; perf. csg. 8,540-63 ft.; I.P. 625 B.P.D.; ¼-in. ck.

Amerada Pet. Corp.'s No. 5 Glaze, Sec. 6-2s-3e. T.D. 8,575 ft.; 5½-in. csg. 8,574 ft.; perf. csg. 8,440-8,562 ft.; I.P. 780 B.P.D.; ¼-in. ck.

Amerada Pet. Corp.'s No. 6 Glaze, Sec. 6-2s-3e. Drlg. sh. 7,126 ft.

Amerada Pet. Corp.'s No. 7 Glaze, Sec. 6-2s-3e. Drlg. sh. 6,220 ft.

Amerada Pet. Corp.'s No. 3 Irion, Sec 6-2s-3e. R.U.

Amerada Pet. Corp.'s No. 9 Marchive, Sec. 6-2s-3e. T.D. 8,570 ft.; perf. csg. 8,480-8,560 ft.

W. C. Feazel et al's No. 1 R. Z. Sclater Sec. 1-2s-2e. T.D. 8,570 ft.; 5½-in. csg 8,569 ft.; I.P. 754 B.P.D.; ¼-in. ck.

G. W. Kenedy's No. 1 R. R. Irion, Sec 1-2s-2e. 5½-in. csg.; T.D. 8,579 ft.; I.P. 757 B.P.D.; ¼-in. ck.

S. W. Richardson's No. 9 Haas Inv. Co., Sec. 7-2s-3e. Drlg. sh.&L. 8,440 ft.

S. W. Richardson's No. 1 A. Mizek, Sec. 7-2s-3e. Drlg. sh. 7,410 ft.

Sun Oil Co.'s No. 2 Townsend, Sec. 8-2s-3e. T.D. 8,572 ft.; I.P. 519 B.P.D.; ¼-in. ck.

Sun Oil Co.'s No. 3 Townsend, Sec. 8-2s-3e. R.U.

Fausse Point—Iberia Parish

Texas Co.'s No. 6 State, Twp. 11s-8e 13⅜-in. csg. 1,407 ft.; T. salt 5,408 ft.; T.D. 5,415 ft.; 7-in. csg. 5,314 ft.; perf csg. 4,985-93 ft.; I.P. 64 B.P.D.; 10/64-in. ck.

Gorden Island—Plaquemines Parish

Texas Co.'s No. 38 State, Sec. 38-23s-33e T.D. 5,440 ft., salt; 7-in. csg. 5,037 ft.; I.P. 259 B.P.D.; ⅛-in. ck.

Texas Co.'s No. 39 State, Sec. 38-23s-33e T.D. 6,952 ft.; hole bridged.

Golden Meadow—La Fourche Parish

Bateman Drlg. Co.'s No. 1 Harry Louviere, Sec. 9-19s-22e. T.D. 5,560 ft.; 5½-in. csg. 5,260 ft.; perf. csg. 5,150-79 ft.; pulling screen.

Bennett O. & R. Co.'s No. 1 Philozate, Sec. 12-19s-22e. Drlg. sd.&sh. 7,502 ft.

Berkshire Oil Co.'s No. 2 Nicol, Sec. 9-19s-22e, 15½-in. csg. 91 ft.

Berkshire Oil Co.'s No. 8 Nicol, Sec. 9 19s-22e. T.D. 5,210 ft.; perf. csg. 5,169-75 ft.; I.P. 390 B.P.D.; 11/64-in. ck.

Berkshire Oil Co.'s No. 13 Nicol. Sec. 2 19s-22e. T.D. 2,690 ft.; I.P. 250 B.P.D.; ¼-in. ck.

Brown & Woods' No. 1 S. Hogan, Sec. 9-19s-22e. T.D. 2,710 ft.; P.B. to 1,500 ft.; sdtrkd.; T.D. 2,672 ft.; 7-in. csg. on bttm.; perf. csg. 2,650-65 ft.; would not flow; W.O.S.R.

Peter Cloban's No 1 Nat Alario, Sec. 2 19s-22e. T.D. 2,669 ft.; 7-in. csg. 2,637 ft.; I.P. 30 bbl. net oil per day; pmpg.

Taylor Fithian's No. 1 Cheramie, Sec. 12-19s-22e. Drlg.

Taylor Fithian's No. 1 Redstock, Sec. 2 19s-22e. T.D. 2,691 ft.; 5½-in. csg. 2,687 ft.; perf. csg. 2,646-60 ft.; W.O. S.R.

Taylor Fithian's No. 1 Martin, Sec. 12-19s-22e. R.U.

Wm. Helis' No. 3 Gaspard, Sec. 9-19s-22e. T.D. 2,664 ft.; 6-in. csg. 2,655 ft. W.O.S.R.

M. H. Marr et al's No. 2 B. & D. unit, Sec. 17-19s-22e. Loc.

M. H. Marr et al's No. 3 Terrebonne, Sec. 9-19s-22e. Loc.

M. H. Marr et al's No. 4 Adam Terrebonne. Sec. 9-19s-22e. Drlg.

Martex Oil Corp. of La.'s No. 2-A Rebstock, Sec. 2-19s-22e. 16-in. csg. 75 ft.

Martex Oil Co.'s No. 3-A Rebstock, Sec. 2-19s-22e. Drlg.

Martex Oil Co.'s No. 1-B Rebstock, Sec. 2-19s-22e. Drlg.

Golden Meadow Oil Co.'s No. 1 Whitney Rebstock, Sec. 2-19s-22e. T.D. 2,700 ft.; 5½-in. csg. 2,700 ft.; W.O.S.R.

Jim McMurrey's No. 1 P. Collins, Sec. 12-19s-22e. T.D. 5,209 ft.; 5¼-in. csg. 5,209 ft.; I.P. 187 B.P.D.; 5/32-in. ck.

Martex Oil Co.'s No. 1 Rebstock, Sec. 2 19s-22e. Loc. abd.

S. Rhodes' No. 2 Falgout Holding, Sec. 12-19s-22e. T.D. 5,216 ft.; 7-in. csg. 5,216 ft.

Fred Shield's No. 1 Paul Callais, Sec. 9 19s-22e. 10¾-in. csg. 80 ft.; T.D. 2,658 ft.; S.D.

Terouche Oil Co.'s No. 2 Cheramie, Sec. 12-19s-22e. Drlg.

Texas Co.'s No. 4 Falgout Holding Co Sec. 9-19s-22e. T.D. 7,935 ft.; 7-in. csg. 7,900 ft.

Texas Co.'s No. 6 Falgout Holding, Sec 9-19s-22e. T.D. 5,170 ft.; 7-in. csg. 5,150 ft.

Texas Co.'s No. 7 Falgout Holding Co., Sec. 9-19s-22e. Loc.

Texas Co.'s No. 8 Falgout Holding Co. Sec. 9-19s-22e. T.D. 3,179 ft.; abd.

Texas Co.'s No. 3 La Terre Co., Sec. 1-20s-21e. Drlg.

Texas Co.'s No. 4 L.L.&E.-Golden Meadow, Sec. 78-19s-22e. T.D. 5,370 ft.; 7-in. csg. 5,370 ft.; perf. csg. 5,160-80 ft. and 5,135-53 ft.; I.P. 185 B.P.D.; ⅛-in. ck.

Texas Co.'s No. 6 L.L.&E.-Golden Meadow, Sec. 78-19s-21e. 10¾-in. csg. 573 ft.; T.D. 5,436 ft.; 7-in. csg. 5,374 ft.; perf. csg. 5,150-78 ft.; I.P. 192 B.P.D.; ¼-in. ck.

Texas Co.'s No. 7 L.L.&E., Golden Meadow, Sec. 78-19s-21e. Drlg. sh. 7,930 ft.

Texas Co.'s No. 8 L.L.&E., Golden Meadow, Sec. 78-19s-21e. 10¾-in. csg. 1,406 ft.

Texas Co.'s No. 5 State-Catfish, Sec. 3-20s-21e. T.D. 3,500 ft.; 7⅝-in. csg. 2,760 ft.; perf. csg. 2,710-20 ft.; I.P. 125 B.P.D.; pmpg.

Grand Bay—Plaquemines Parish

Gulf Oil Corp.'s No. 5-A Grand Prairie, Sec. 31-19s-19e. T.D. 8,085 ft.; 9⅝-in. csg. 8,070 ft.; drlg. sh. 8,681 ft.

Gulf Oil Corp.'s No. 6-A Grand Prairie Lv. Dist., Sec. 17-20s-10e. T.D. 10,453 ft.; P.B. 10,050 ft.

Gulf Oil Corp.'s No. 7-A Grand Prairie Lv. Dist., Sec. 5-20s-19e. Loc.

Gulf Oil Corp.'s No. 8-A Grand Prairie Dist., Sec. 5-20s-19e. Loc.

Gulf Oil Corp.'s No. 4 State, Sec. 20-19s-19e. Loc.

Texas Co.'s No. 1 State-Lookout Pass, Sec. 48-20s-18e. Loc.

Grand Lake—Cameron Parish

Amerada Pet. Corp.'s No. 2 Mallard Bay, Twp. 15s-4w. 10¾-in. csg. 1,317 ft.; T.D. 8,350 ft.; 5½-in. csg. 8,349 ft.; perf. csg. 8,039-50 ft.; I.P. 3½ bbl. dist. per day; ⅛-in. ck.

Superior Oil Co.'s No. 5 State, Twp. 13s-4w. T.D. 8,075 ft.; 7-in. csg. 8,075 ft.; rec. S.W. 7,090-7,100 ft.

Superior Oil Co.'s No. 6 State, Twp. 13s-4w. Loc.

Hackberry—Cameron Parish

Gulf Oil Corp.'s No. 25-A Erwin, Sec. 13-12s-10w. Drk.

Gulf Oil Corp.'s No. 29-B Gulf Ld., Sec. 14-12s-10w. Drlg. sh. 3,370 ft.

Harrison & Abercrombie's No. 1 Doiron, Sec. 37-12s-10w. Loc.

Stanolind O. & G. Co.'s No. 20 Cameron Par. Sch. Ld., Sec. 16-12s-10w. T.D. 7,935 ft.; abd.

Stanolind O. & G. Co.'s No. 29-B Gulf Ld., Sec. 14-12s-10w. Drlg. sdy. sh. 6,835 ft.

Stanolind O. & G. Co.'s No. 30-B Gulf Ld., Sec. 31-12s-10w. T.D. 7,225 ft.; P.B. 4,800 ft.; sdtrkd.; drlg. sh. 6,963 ft.

Superior Oil Co.'s No. 8 Benson-Vincent, Sec. 30-12s-10w. Drlg. sd. 7,336 ft.

Texas Co.'s No. 29-B State, Twp. 12s-9w. Drlg. sh. 1,602 ft.

Union Sulphur Co.'s No. 2 Doiron, Sec. 37-12s-10w. Drlg. sh. 4,795 ft.

Horseshoe Bayou—St. Mary Parish

Texas Co.'s No. 3 St. Mary Parish Ld. Co., Sec. 37-17s-9e. Drlg. sd.&sh. 3,640 ft.

Texas Co.'s No. 3 State, Sec 40-17s-9e T. sd. 11,311 ft.; T.D. 12,030 ft.; abd.

Jeanerette—St. Mary Parish

Herton Oil Co.'s No. 6 Roane, Sec. 38-13s-9e. T.D. 10,789 ft.; 7⅝-in. csg 10,260 ft.; stk. cutting tool; P.B. 10,170 ft.

Jefferson Island—Iberia Parish

Texas Co.'s No. 4 Jefferson Island Salt, Sec. 58-12s-5e. Drlg. sdy. L. 5,680 ft.

Texas Co.'s No. 3 State, Twp. 12s-5e R.U.

Jennings—Acadia Parish

Glassell-Glassell's No. 8 Trusher, Sec. 47-9s-2w. T.D. 9,165 ft.; sdtrkd.; drlg. sdy. sh. 5,161 ft.

Gulf Oil Corp.'s No. 42 Arnaudet, Sec. 47-9s-2w. Drlg. sd. rk. 5,910 ft.

Shell Oil Co., Inc.'s No. 8 Community. T.D. 7,454 ft.; P.B. 7,404 ft.; comp.; no ga.

Stanolind O. & G. Co.'s No. 116 Crowley O. & M. Co., Sec. 48-9s-2w. Drlg. sh. &L. 5,775 ft.

Stricker-Pharis et al's No. 1 Gulf fee, Sec. 45-9s-2w. 16-in. csg. 60 ft.

Lafitte—Jefferson Parish

Texas Co.'s No. 12 Rigolets Cooperative Fur Co., Sec. 28-17s-24e. T.D. 3,162 ft.; D.S. stk.

Texas Co.'s No. 14 Lafitte, Sec. 20-17s-24e. T.D. 4,599 ft.; P.B. 3,404 ft.; sdtrkd.; T.D. 10,089 ft.; 7-in csg. 10,089 ft.

Texas Co.'s No. 5 Madison Realty Co., Sec. 17-17s-24e. 10¾-in. csg. 1,876 ft. drlg. sdy. sh. 9,308 ft.

Texas Co.'s No. 4 Marrero, Sec. 21-17s-24e. T.D. 10,308 ft.; 7-in. csg. 9,902 ft.

La Fourche Crossing—La Fourche Parish

Mikton Oil Co.'s No. 2 Martinez, Sec 132-15s-17e. 11¾-in. csg. 2,687 ft.; T.D. 4,907 ft.; fsg.

Lake Hermitage—Plaquemines Parish

Gulf Oil Corp.'s No. 11 La Fourche Basin Lv. Dist., Sec. 11-18s-25e. R.U.

Lake Pelto—Terrebonne Parish

Texas Co.'s No. 28 State, Sec. 7-23s-18e. T.D. 5,752 ft., salt; P.B. to sdtrk.; T. salt 5,486 ft.; T.D. 5,490 ft.; 7-in. csg. 5,480 ft.; perf. csg. 5,410-60 ft.

Texas Co.'s No. 29 State, Sec. 18-23s-18e. Drlg. sh.&L. 4,955 ft.

Texas Co.'s No. 30 Lake Pelto, Sec. 7-23s-18e. Drlg. sdy. sh. 3,155 ft.

La Pice—St. James Parish

Shell Oil Co., Inc.'s No. 1 Lebermuth & Israel. Cg. sh. 11,221 ft.

Leesville—Plaquemines Parish

Texas Co.'s No. 72 L.L.&E., Sec. 27-21s-22e. T.D. 5,041 ft.; sdtrkd.; T. salt 6,854 ft.; T.D. 6,866 ft.; 7-in. csg. 6,822 ft.; perf. csg. 6,735-75 ft.; tstd. oil and S.W.; perf. csg. 6,110-75 ft.; rec. S.W., perf. csg. 6,785-6,827 ft.; I.P. 12 B.P.D.; ⅛-in. ck.

New Iberia—Iberia Parish

Wm. Helis' No. 7 Sabatier, Sec. 54-12s-7e. 7-in. csg. 2,205 ft.; T.D. 3,090 ft.; P.B. 2,995 ft.; 5½-in. csg. 3,010 ft.; perf. csg. 2,872-82 ft.; P.B. 2,905 ft.; W.O.

Wm. Helis' No. 7 J. E. Schwing, Sec. 56-12s-7e. T.D. 8,850 ft.; P.B. 7,840 ft.; F.D. 8,850 ft.; P.B. 8,025 ft.; went back into old hole; P.B. and sdtrk., T.D. 8,240 ft.; run csg.

Wm. Helis' No. 8 Schwing, Sec. 56-12s-7e. T.D. 892 ft.; 6-in. csg. 846 ft.

Lisbon-Iberia Oil Corp.'s No. 6 Gulf-Schwing, Sec. 25-12s-7e. T.D. 3,780 ft.; S.D.

Texas Co.'s No. 2 Bryant, Sec. 25-12s-7e. R.U.

Texas Co.'s No. 13 Duke, Sec. 26-12s-7e T.D. 3,746 ft.; 7-in. csg. 3,620 ft.; I.P. 253 B.P.D.; 12/64-in. ck.

Texas Co.'s No. 14 Duke, Sec. 26-12s-7e. Drlg. 1,230 ft.

Texas Co.'s No. 3 Schwing, Sec. 71-12s-7e. T.D. 8,454 ft.; 7-in. csg. 7,848 ft.

Texas Co.'s No. 1 H. Perry Walet, Sec. 2-12s-7e. Drlg. sd.&L. 7,422 ft.

North Crowley—Acadia Parish

Humble O. & R. Co.'s No. 5 Ohlenforst, Sec. 34-8s-1e. T.D. 9,080 ft.; fsg.

Humble O. & R. Co.'s No. 6 Ohlenforst, Sec. 34-8s-1e. Drlg. sh. 7,830 ft.

Humble O. & R. Co.'s No. 2 Thevis, Sec. 34-8s-1e. T.D. 8,810 ft.; P.B. 8,807 ft.; W.O.C.; 7-in. csg. 8,807 ft.; perf. csg. 8,776-82 ft.; I.P. 803 B.P.D.; ¼-in. ck.

North Elton—Allen Parish

Stanolind O. & G. Co.'s No. 1 G. W. Jenkins, Sec. 23-6s-3w. T.D. 7,760 ft.; perf. csg. 7,422-30 ft.; I.P. 42 bbl. dist.; ¼-in. ck.

Paradis—St. Charles Parish

Texas Co.'s No. 3 L.L.&E. Paradis, Sec. 8-14s-20e. 10¾-in. csg. 1,448 ft.

Perkins—Calcasieu Parish

Humble O. & R. Co.'s No. 3 Edgewood Ld. & Lgng. Co., Sec. 5-8s-10w. T.D. 7,386 ft.; abd.

Plumb Bob—St. Martin Parish

Texas Co.'s No. 13 St. Martin Ld. Co., Sec. 21-8s-7e. Driving piling.

Port Barre—St. Landry Parish

Gulf Oil Corp.'s No. 17 Wilson-Broach. Sec 4-6s-5e. T.D. 4,861 ft.; P.B. 2,061 ft.; sdtrkd.; drlg. sd. 5,293 ft.

McDannald Oil Co.'s No. 2 Futral, Sec. 20-6s-5e. Drk.

Pan American Prod. Co.'s No. 5 Garland, Sec. 4-6s-5e. T.D. 5,089 ft.; 5½-in. csg. 5,064 ft.; perf. csg. 4,830-35 ft.; flwd. oil; went dead.

Y. D. Spill's No. 1 Gaudet, Sec. 4-6s-5e. S.D. 4,700 ft.

Texas Co.'s No. 27 Botney Bay, Sec. 4-6s-5e. Bldg. rd.

Westgate-Greenland Oil Co.'s No. 1 Jeansenne, Sec. 20-6s-5e. T.D. 5,286 ft.; 7-in. csg. 5,286 ft.; perf. csg. 5,274-84 ft.

Potash—Plaquemines Parish

Humble O. & R. Co.'s No. 41 Orleans Sec. 14-18s-15e. T.D. 4,430 ft.; P.B.; sdtrkd.; drlg. sh.&sd. 3,807 ft.

Quarantine Bay—Plaquemines Parish

Gulf Oil Corp.'s No. 4-A Orleans Lv. Bd. Sec. 7-19s-17e. T.D. 6,128 ft.; fsg.

Gulf Oil Corp.'s No. 9 State QQ, Sec. 18-19s-17e. Loc.

Gulf Oil Corp.'s No. 14 State, Sec. 7-19s-17e. T.D. 8,198 ft.; 7-in. csg. 8,180 ft.; I.P. 719 B.P.D.; ⅛-in. ck.

Sorrento—Ascension Parish

Sorrento Synd.'s No. 1 L. L. Bernard, Sec. 27-10s-4e. S.D. 8,004 ft.; P.B. to 6,575 ft.; S.D.

South Houma—Terrebonne Parish

Shell Oil Co., Inc.'s No. 4 Peters, Sec. 72-18s-18e. Cg. sh.&L. 11,142 ft.

South Jennings—Jeff Davis Parish

Stanolind O. & G. Co.'s No. 1 Doherty, Sec. 15-10s-3w. 7-in. csg. 9,573 ft.; T.D. 9,700 ft.; flwg. gas and dist.; tstg.

Starks—Calcasieu Parish

W. T. Burton's No. 1 Industrial Lbr. Co., Sec. 29-9s-1w. T.D. 7,725 ft.; D.S. stk.; trying to mill through bit.

Valentine—La Fourche Parish

Wm. Helis' No. 5 Valentine Sugars, Inc., Sec. 2-17s-20e. 10¾-in. csg. 1,632 ft.; T.D. 7,845 ft.; P.B. 6,965 ft.; 7-in. csg. 6,990 ft.; tstd. oil&S.W.; made sqz. job; drld. out 7,020 ft.; 5-in. csg. 7,020 ft.; perf. csg. 6,977-83 ft.; tstd. gas, some oil; S.D.

Pan American Prod. Co.'s No. 3-A Community, Sec. 10-17s-20e. T.D. 11,001 ft.; abd.

Venice—Plaquemines Parish

Tide Water Asso. Oil Co.'s No. 11 Manhattan Ld. Co., Sec. 35-21s-30e. Drlg. sh. 1,640 ft.

Vermilion Bay—Iberia Parish

Texas Co.'s No. 4-B Vermilion Bay, Twp. 16s-5e. R.U.

Villa Platte—Evangeline Parish

Continental Oil Co.'s No. 5 Fontenot, Sec. 46-3s-2e. Drk.

Continental Oil Co.'s No. 4 Hattie Haas, Sec. 44-3s-2e. Drlg. sh.&L. 9,810 ft.

Continental Oil Co.'s No. 7 Ludeau-Haas, Sec. 45-3s-2e. Drlg. sh.&L. 7,161 ft.

Continental Oil Co.'s No. 4 Martha Haas, Sec. 44-3s-2e. T.D. 9,050 ft.; I.P. 286 B.P.D.; ⅛-in. ck.

Continental Oil Co.'s No. 6 Opelousas, Sec. 47-3s-2e. Drlg. sh. 8,010 ft.

Continental Oil Co.'s No. 3 Adam Tate, Sec. 40-4s-2e. Drlg. sh. 9,795 ft.

Continental Oil Co.'s No. 2 W. L. Tate, Sec. 48-3s-2e. Drlg. sh. 9,235 ft.

Continental Oil Co.'s No. 1 T. E. Vidrine, Sec. 48-3s-2e. Drlg. sh. 7,790 ft.

Continental Oil Co.'s No. 4 Vidrine, Sec. 34-3s-2e. Drlg. sh. 6,505 ft.

Danciger O. & R. Co.'s No. 1 J. E. Vidrine, Sec. 1-4s-2e. Drlg. sh. 1,520 ft.

West Gueydan—Vermilion Parish

Magnolia Pet. Co.'s No. 4 Ferguson, Sec. 5-12s-2w. Loc.

West Lake Verret—St. Mary Parish

Shell Oil Co., Inc.'s No. 4 Jeanerette. T.D. 8,600 ft.

White Castle—Iberville Parish

Shell Oil Co., Inc.'s No. 15 Wilbert. Cg. sh. 6,077 ft.

Woodlawn—Jeff Davis Parish

Union Sulphur Co.'s No. 4 Miller, Sec. 7-9s-5w. Drlg. sh. 4,312 ft.

Union Sulphur Co.'s No. 4 Miller, Sec. 7-9s-5w. R.U.

Union Sulphur Co.'s No. 1 E. A. Norton, Sec. 12-9s-5w. T.D. 9,478 ft.

Woodlawn Oil Corp.'s No. 1 Hebert, Sec. 1-9s-6w. T.D. 9,543 ft.; P.B. 8,160 ft.

S. LOUISIANA WILDCATS

Acadia Parish

Tri Parish Drillers, Inc.'s No. 1 Paul Stag, Sec. 4-7s-1w. M.I. rig.

Allen Parish

Housh & Thompson's No. 1 Ind. Lbr. Co., Sec. 1-4s-5w. 10¾-in. csg. 1,600 ft.; drlg. sh. 9,160 ft.

Assumption Parish

Falcon-Seaboard Drlg. Co.'s No. 1 Alex Simoneaux, Sec. 43-12s-13e. R.U.

Shell Oil Co., Inc.'s No. 1 C. S. Eellis, Sec. 9-16s-14e. Drlg. sh. 10,717 ft.

Avoyelles Parish

Joe F. Beit's No. 1 Thompson & Katz, Sec. 23-2n-5e. Drlg. sh. 6,156 ft.

Beauregard Parish

Atlantic Ref. Co.'s No. 1 Lutcher Moore, Sec. 22-3s-11w. Loc.

Atlantic Ref. Co. No. 1 Rice Ld. & Lbr. Co., Sec. 22-3s-11w. Loc.

California Co.'s No. 2 Long Bell Lbr. Co., Sec. 12-5s-10w. T.D. 10,055 ft.; 7-in. csg. 6,000 ft.; T.D. 10,600 ft.; abd.

Calcasieu Parish

C. L. Arnette's No. 1 Arthur Welch, Sec. 19-10s-12w. 10¾-in. csg. 130 ft.; T.D. 395 ft.; S.D.

Cameron Parish

Phillips Pet. Co.'s No. 1 Miami Corp., Sec. 11-14s-6w. Drlg. sh. 6,967 ft.

East Baton Rouge Parish

H. J. Bluford's No. 1 Balter-Ratcliff, Sec. 45-4s-1e. T.D. 6,516 ft.; abd.

Iberia Parish

Plymouth Oil Co. et al's No. 1 Lynch McHugh, Sec. 13-12s-10e. 10¾-in. csg. 2,519 ft.; cg. sh.&sd. 7,616 ft.

Jeff Davis Parish

Continental Oil Co.'s No. 1 Niblett, Sec. 1-11s-5w. Loc.

La Fourche Parish

Tide Water Asso. Oil Co. No. 1 Delta Farms, Inc., Sec. 6-17s-23e. T.D. 11,850 ft.

Orleans Parish

W. T. Burton's No. 1 L.&N.R.R., Sec. 18-11s-15e. T.D. 10,394 ft.; 5½-in. csg. 10,274 ft.; S.D.

W. T. Burton's No. 2 State-Lake Pontchartrain, Twp. 10s-13e. R.U.

Plaquemines Parish

Gulf Oil Corp.'s No. 1-D Buras Lv. Dist., Sec. 6-23s-31e. Drlg. sh.&L. 8,469 ft.

Rapides Parish

Gulf States Expl. Co.'s No. 1 Dunnam & Robinson, Sec. 69-4n-3w. Drlg. sh. 3,415 ft.

Rantex Pet. Corp.'s No. 1 Mathews, Sec 6-1n-1e. Drlg. sh. 6,550 ft.

Smith & Aarnes' No. 1 Eota Realty Co., Sec. 12-4n-3e. Drk.

St. Bernard Parish

Gulf Ref. Co.'s No. 4 State-R.R. (Lake Borgne), Twp. 12s-15e. 9⅝-in. csg. 8,161 ft.; T.D. 10,632 ft.; P.B. 9,700 ft.; rmd. to 9,658 ft.; lost core bbl.; P.B. sdtrkd. 8,912 ft.; T.D. 10,528 ft.; 7-in. csg. 10,494 ft.; hole cleaned; S.D. for repairs.

St. Martin Parish

Wm. Helis' No. 2 Levert Plantation, Sec. 33-9s-7e. T.D. 8,157 ft.; abd.

Wm. Helis' No. 1 Rycade Oil Co., Sec. 33-9s-7e. T.D. 8,899 ft.; P.B. 7,475 ft.; to sdtrk.

St. Landry Parish

Pure Oil Co. et al's No. 1 E. M. Boagni, Sec. 41-6s-4e. R.U.

St. Mary Parish

Perry S. Cooney No. 1 A. W. Allain, Sec. 46-13s-9e. S.D. 2,600 ft.

Texas Co.'s No. 1 State West Cou Blanche Bay, Twp. 16s-7e. Loc.

Terrebonne Parish

Barnsdall Oil Co.'s No. 1 Nelson, Sec. 2 21s-11e. 10¾-in. csg. 2,767 ft.; drlg. sh.&shls. 8,680 ft.

Continental Oil Co. et al's No. 1 Peters, Sec. 32-19s-15e. 13⅜-in. csg. 1,987 ft.; drlg. sh. 11,986 ft.

Vermilion Parish

La. Ld. & Explo. Co.'s No. 3 La. Fu Co., Sec. 9-15s-1e. T.D. 8,900 ft.; abd

Texas Co.'s No. 1 Vermilion Par. Sch. Bd., Sec. 16-13s-4e. T.D. 9,923 ft.; 7⅝-in. csg. 9,918 ft.

TEXAS

Week Ended December 30

GULF COAST FIELDS

Anchor—Brazoria County

Humble O. & R. Co.'s No. 1 R. H. Carr. Blk. 62. Drk.

Humble O. & R. Co.'s No. 1 Crockett, J. de Jesus Valderas Sur. Loc.

Humble O. & R. Co.'s No. 1 Galznik & Taylor, J. de Jesus Valderas Sur. Drlg. sh. 4,930 ft.

Humble O. & R. Co.'s No. 1 M. W. Mettler, J. de Jesus Valderas Sur. 13⅜-in. csg. 944 ft.; 9⅝-in. csg. 7,139 ft.; T.D. 10,617 ft.; tstd. S.W. and oil 10,578-85 ft.; sqzd. perf.; W.O.C.

Glenn McCarthy's No. 1 Ida M. Salmon and John Muma, Geo. Robinson Sur 9⅝-in. csg. 6,860 ft.; T. Frio 8,820 ft.; T.D. 10,756 ft.; perf. csg. 10,491-10,501 ft.; rec. S.W.

Old Ocean—Brazoria County

Harrison & Abercrombie's No. 8 Armstrong, Polly & Chance Sur. R.U.

Harrison & Abercrombie's No. 7 Bern ard River Ld. Dev. Co., C. Breen Sur. Drlg. sh. 7,560 ft.

Harrison-Abercrombie's No. 3 Larsen, C. Breen Sur. Drlg. sh. 2,936 ft.

Stanolind O. & G. Co.'s No. 1 Giles, C. Breen Sur. 9⅝-in. csg. 7,047 ft.; drlg. sh. 9,670 ft.

Sun Oil Co.'s No. 3 Borsodi, C. Breen Sur. 13⅜-in. csg. 1,515 ft.; 9⅝-in. csg. 7,020 ft.; drlg. sd.&sh. 9,820 ft.

Sun Oil Co.'s No. 4 McCampbell, C. Breen Sur. R.U.

Cedar Point—Chambers County

Standard Oil Co. of Texas' No. 61-120 State. 10¾-in. csg. 1,601 ft.; T.D. 6,400 ft.; abd.

Seabreeze—Chambers County

Sun Oil Co. No. 2 Hoffman, T.&N.O. Sur No. 131. T.D. 8,400 ft.; W.O.C.

Turtle Bay—Chambers County

Stanolind O. & G. Co.'s No. 2 State, Tr. 39. 16-in. csg. 115 ft.; 5½-in. csg. 6,637 ft.; perf. csg. 6,635-37 ft.; swbg.

Garwood—Colorado County

Davis & Co., Inc., No. 1 J. R. McLane. I.&G.N. Sur. 41. Cg. sdy. sh. 10,176 ft.

Big Creek—Fort Bend County

Merrimac Oil Corp.'s No. 1 George, B. Wickson Sur. (SW. Flank). Spd. and S.D.

Caplen—Galveston County

Sun Oil Co.'s No. 2 Zinn & Forman, S. F. Hughes Sur. 9⅝-in. csg. 1,988 ft. drlg. sh. 5,730 ft.

League City—Galveston County

Phillips Pet. Co.'s No. 1 Brittnacher, S F. Austin Sur. T.D. 10,348 ft.; P.B. 9,135 ft.; tstg.

Phillips Pet. Co. No. 1 Dr. O. Patton (1 mi. E of production). Perf. csg. 9,177-97 ft.; flwd. S.W.; sqzd. perf.; C.O.

Phillips Pet. Co.'s No. 2 J. S. Rice est., J. M. Perry & Austin Sur. Drlg. sh. 11,167 ft.

Phillips Pet. Co.'s No. 3 Stewart Title Guaranty Co., S. F. Austin Sur. R.U.

Phillips Pet. Co.'s No. 4 Stewart Title Guaranty Co., S. F. Austin Sur. 10¾-in. csg. 3,520 ft.; 7⅝-in. csg. 9,510 ft.; drlg. sh. 11,067 ft.

Phillips Pet. Co.'s No. 1 Wimhurst (NW extension). T.D. 10,962 ft.; well tried to blow out; D.S. stk.; P.B. 10,630 ft.; perf. csg.; set 23 ft. screen on bttm. 10,882 ft.; flwg. gas and dist.; well went dead; T.A.

Bammel—Harris County

H. M. Harrell's No. 1 Graves, C. Walters Sur. Loc.

Clear Lake—Harris County

Humble O. & R. Co.'s No. 33-C Humble-West, Wm. Dobie Sur. Drlg. sh. 5,227 ft.

Humble O. & R. Co.'s No. 2-D Humble-West, G. B. McKinstry Sur. Drlg. sh. 4,630 ft.

Friendswood—Harris County

Humble O. & R. Co.'s No. 16 Kiesling-Dixon, T. Choate Sur. T.D. 6,041 ft.; tstg.

Humble O. & R. Co.'s No. 21 West Prod. Co., T. Choate Sur. Drlg. 1,129 ft.

Clam Lake—Jefferson County

Shell Oil Co., Inc.'s No. 9 McFaddin, S. A. Pace Sur. R.U.

Lovells Lake—Jefferson County

Humble O. & R. Co.'s No. 13 Broussard, M. Grange Sur. Drlg. sh. 7,698 ft.

Humble O. & R. Co.'s No. 7 Jefferson Ld. Co., C. Hillebrandt Sur. Drlg. sh. 5,570 ft.

Stanolind O. & G. Co.'s No. 2-A Steinhagen, Wm. Carr Sur. T.D. 7,818 ft.; perf. csg. 7,809-14 ft.

Stanolind O. & G. Co.'s No. 4-A Steinhagen, Wm. Carr Sur. T.D. 7,823 ft.; sdtrkd.; drlg. sh. 6,265 ft.

South China—Jefferson County

Hebert & Smith's No. 1 Guitermann, G. T. Gaylor Sur. 12. T.D. 8,000 ft.; sd. 7,491-7,520 ft.; run csg.

Esperson—Liberty County

General Crude Oil Co.'s No. 9 Davis, D Kokernot Sur. Drlg. sh. 7,365 ft.

General Crude Oil Co.'s No. 7-B Esperson, A. McNeil Sur. T.D. 7,860 ft.; P.B. and sdtrkd.; drlg. sh. 7,280 ft.

General Crude Oil Co.'s No. 10 B. Esperson, A. McNeil Sur. Drlg. sh. 6,530 ft.

Hull—Liberty County

Gulf Oil Corp.'s No. 115 Phoenix Dev. Co., J. Devore Lge. (SE flank deep test). 9⅝-in. csg. 5,904 ft.; drlg. sh. 7,603 ft.

Martha—Liberty County

Stanolind O. & G. Co.'s No. 2 Flowers, I.&G.N.R.R. Sur. Drk.

Segno—Polk County

J. K. Dorrance's No. 6-A Wing, I.&G.N. Sur. Cg. 8,096 ft.

Gulf Oil Corp.'s No. 4 Quinn, A. Morales Sur. R.U.

Gulf Oil Corp.'s No. 24 Wing, I.&G.N. Sur. 14. Drlg. sh. 2,576 ft.

Gulf Oil Corp.'s No. 26 Wing, I.&G.N. Sur. 15. T.D. 8,187 ft.; tstg.

Gulf Oil Corp.'s No. 27 Wing, I.&G.N. Sur. 15. Drlg. sh. 7,020 ft.

Humble O. & R. Co.'s No. 19-BX Kirby Lbr. Co., P. Garcia Sur. T.D. 8,168 ft.; tstg.

Spurger—Tyler County

Republic Prod. Co.'s No. 28 fee, N. Hurd Sur. 9⅝-in. csg. 1,333 ft.; T.D. 7,706 ft.; tstg.

Republic Prod. Co.'s No. 30 fee, N. Hurd Sur. Drlg. sh. 6,515 ft.

Republic Prod. Co.'s No. 31 fee, N. Hurd Sur. Loc.

Hilje—Wharton County

Texas Co.'s No. 2 Peters, E.T.R.R. Sur., Sec. 101. Loc.

GULF COAST WILDCATS

Brazoria County

Fabriquze et al's No. 1 Freeport Sulphur, Stephen F. Austin Sur. (Bryan Mound). M.I.M.

Hamman Explin. Co.'s No. 1-B Darrington State Prison Farm, F. Bingham Sur. Loc.

D. M. Hill's No. 1 Max Bader, Wm Smeathers Lge. Loc.

Glenn McCarthy's No. 1 E. W. K. Andrau, H.T.&B. Sur. 5. 10¾-in. csg. 3,512 ft.; drlg. sh. 10,061 ft.

Glenn McCarthy's No. 2 Houston Farm Dev. Co., J. Perry & E. Austin Sur. 7 10¾-in. csg. 3,492 ft.; drlg. sh. 10,126 ft.

Mayo & Frazier's No. 1 Darrington State Prison Farm, A. McFarlan Sur. T.D. 9,150 ft.; abd.

Titanic Oil Co.'s No. 2 S. E. Allen, J. G. and W. McNeil Sur. Loc.

Chambers County

Geo. Anderson et al's No. 1 Veruna Lawrence, W. D. Smith Sur. Drlg. sh. 3,339 ft.

Colorado County

Cockburn Oil Corp. No. 1 R. W. Ferra. H. Chrisman Sur. Loc.

Fort Bend County

Fred Browning's No. 1 Kroescher, W. Bartlett Sur. 10¾-in. csg. 1,128 ft.; cg. sh. 7,698 ft.

H. C. Cockburn's No. 1 G. W. Burkett, Bundieck Sur. Loc.

Gulf Oil Corp.'s No. 1 Russell Brown, Wm. Pettus Sur. 10¾-in. csg. 1,228 ft. T.D. 8,505 ft.; abd.

Magnolia Pet. Co.'s No. 1 G. H. Huntington, Henry Scott Sur. T. Cckfld. 7,556-60 ft.; T.D. 8,698 ft.; perf. lnr. 8,662-72 ft.; rec. S.W.

Ray Ranger's No. 1 Sugarland Industries, John Foster 2½ Lge. Drk.

Superior Oil Co.'s No. 1 A. P. George, Wiley Martin Sur. T.D. 8,010 ft.

Galveston County

Continental Oil Co.'s No. 1 Lobit-Cherardi, Perry & Austin Sur. Drlg. sh. 9,226 ft.

Hebert & Smith's No. 1 J. A. Harris, Edw. Hall & Levi Jones Sur. T.D. 6,705 ft.; abd.

Standard Oil Co.'s No. 1 State, Sec. 234. Driving piling.

Sun Oil Co.'s No. 1 State, Sec. 178. Dredge canal.

Harris County

Gulf Oil Corp.'s No. 1 H. H. Roberts, A. Roberts Sur. Drlg. sh. 6,930 ft.

John Mayo et al's No. 1 A. A. Sharpe, S. G. Haynil Sur. 10¾-in. csg. 670 ft.; drlg. sh. 6,460 ft.

Jackson County

Wheelock & Collins' No. 1 Four Way ranch, Young Coleman Sur. Drlg. sd. &sh. 269 ft.

Jefferson County

Falcon Seaboard Drlg. Co.'s No. 1 Powell, W. V. Vacocy Lge., Lot 6. Drlg. sh. 8,786 ft.

Merrimac Oil Corp.'s No. 1 State, Tr. 72, 50 ft. due E of Harwell's abd. hole W.O. drk.

Liberty County

Hebert & Smith's No. 1 W. E. Boyt, H. &T.C.R.R. Sur. Loc.

Matagorda County

Gulf Stream Oil Co.'s No. 1 G. W. Ziprian, Luke Lessassier Sur. Drlg. sdy. sh. 2,097 ft.

Van M. Vincent's No. 1 J. F. McNabb Est., E. R. Wightman Lge. Loc.

Montgomery County

H. C. Cockburn et al's No. 1 Bender, Montgomery Co. Sch. Ld. and De Crow Sur. Loc.

David B. MacDaniel's No. 1 Hattie O. Baldwin, Walker Co. Sch. Ld. Sur. 10¾-in. csg. 1,230 ft.; drlg. sh. 8,900 ft.; est.

Sturm & Womack's No. 2 Foster est, Abraham Pevehouse Sur. Drlg. sh. 3,826 ft.

T. J. Wood & J. R. Martin's No. 1 H. B. Fultz, Wm. C. Clark Sur. S.D. 5,000 ft.

San Jacinto County

Harrison & Abercrombie's No. 1 Lockin, Wm. Hays Sur. Drlg. sh. 5,028 ft.

Tyler County

J. Z. Werby et al's No. 1 Hayes, J. C. Boyett Sur. Cg. sh. 4,275 ft.

Waller County

Hunter & Mayos et al's No. 1 Humble fee, Wm. Hooper Sur. Spd.

Washington County

Mount Selman Oil Co. No. 1 Fritz Fuelberg, W. Lightfoot Sur. S.D. 4,510 ft.

Wharton County

Frank Campbell et al's No. 1 Harrison & Mitchell, Sec. 21, G.H.&H.R.R. Sur. 16-in. csg. 64 ft.; T.D. 7,112 ft.; abd.

J. F. Hutchins' No. 2 Borden, E. M. Cox Sur. A-14. Loc.

Dr. T. M. Neal No. 1 fee, Elisha Flack Sur. Loc.

S. W. TEXAS WILDCATS

Aransas County

Continental Oil Co.'s No. 1 St. Charles Co., R. D. Blassman Sur. 18⅝-in. csg. 290 ft.; T.D. 8,387 ft.; S.D. until 1940.

Bastrop County

C. R. Franklin's No. 1 Oscar McDonald, Martha Barker Sur. Drlg. 1,276 ft.

Marts & Beaven's No. 1 J. E. Ferguson, Jas. Doyle Sur. T.D. 1,832 ft.

Bee County

Coronado Corp.'s No. 1 Claude Heard, M.M.&J. Tool Sur. 4-min. D.S.T. 3,257-70 ft.; tstd. 320 lb. W.P.; D.S.T. 4,703-08 ft.; tstd. 430 lb. W.P.; T.D. 5,520 ft.; P.B. 5,274 ft.; perf. csg. 4,766-76 ft.; I.P. 430,000,000 cu. ft. gas, open flow.

Humble O. & R. Co.'s No. 1 W. T. Caswell. T.D. 2,809 ft.; abd.

Mills Bennett Prod. Co.-Anderson-Prichard Oil Corp.'s No. 1 D. E. Robinson, J. M. Uranga Sur. T. Wlx. sd. est. 7,531 ft.; cd. sd.&sh. good O.&G. color; 14-min. D.S.T. 7,541-51 ft. rec. 15 ft. oil; 245 lb. W.P.; will core 10 ft. and make D.S.T.; 5-min. D.S.T. 7,620-60 ft. tstd. 62 lb. W.P.; rec. 225 ft. gascut mud; well tried to blow out at 7,921 ft.; stk. D.S.; sdtrkd.; T.D. 4,701 ft.; 5½-in. csg. 4,701 ft.; perf. csg. 4,467-72 ft.; flwg. S.W.; small amt. oil; ⅛-in. ck.; W.P. 800 lb.

Bell County

G. P. Sheiton et al's No. 1 Nelson, Michael Griffin Sur. S.D. 1,208 ft.

Bexar County

L. Beauchamp et al's No. 1 J. J. Brown, R. F. Shield Sur. 19. Loc.

Heller Pet. Co.'s No. 1 Wildmann, Juan Sanchez Sur. 34. S.D. 448 ft.

Joe Noake's No. 1 San Antonio Sub. Irrg. Farm, W. Miller Sur. 180. S.D. 250 ft.

Philtop O. & G. Co.'s No. 1-A Cassin, Fernando Rodriquez Sur. T.D. 1,930 ft.

J. A. Tarver's No. 1 Florence Lam, Manuel de Luna Sur. 3. 6⅝-in. csg. 1,205 ft.; T.D. 1,692 ft.; cd. bkn. sh. 1,638-92 ft.; S.S.O.; bailed est. 10 bbl. oil P.D. before sanding up; clean out hole.

Blanco County

E. L. Nixon's No. 3 Crist, John McClenechen Sur. 94. T.D. 936 ft.; fsg.

Burleson County

H. Y. Barnett's No. 1 Giesenschlag, J. W. Hollingsworth Sur. R.U.

Caldwell County

Kean & Williamson's No. 1 E. E. Rector, J. Roberts Sur. Drlg. 730 ft.

Calhoun County

Coronado Corp. No. 1 K. Welder, Hidalgo Sur., 3 mi. SE Seadrift. "Tight well"; reported to be tstg. 5½-in. csg. set close to bttm.; no information.

Cameron County

Pure Oil Co.'s No. 3 Gatewood-Newberry, Sh. 3, San Martin gr. T.D. 8,168 ft.; abd.

De Witt County

Atlantic Ref. Co.'s No. 1 Pearl Conwell, Chas. Lockhart Sur. Bldg. drk.

Duval County

J. B. Blanchard's No. 1-A Parr, T. C. Rogers Sur., Sec. 22. T.D. 4,600 ft.; abd.

W. L. Catlin et al No. 1 Louis Escapule, J. Poitevent Sur. 73. R.U.

Continental Oil Co.'s No. 1-C Clara Driscoll, Santa Rosalia gr. Spd.

Cox & Hamon's No. 1 Hoffman-Gorman, B.S.&F. Sur., Sec. 119. 10¾-in. csg. 35 ft.; T.D. 3,309 ft.; 5½-in. csg. 2,241 ft.; perf. csg. 2,014-35 ft.; jetting with gas.

Hiawatha O. & G. Co.'s No. 1-A Herberger, Santos Flores gr. R.U.

Landreth Prod. Co.'s No. 1 Caballero, J. Poitevent Sur. 281. Loc.

McCreslenn Oil Co.'s No. 1 Wordendrought, J. L. Saen Sur. 156. Loc. abd.

Mills Bennett Prod. Co. and Stanolind O. & G. Co.'s No. 2-A Ira Yates, E. N. Gray Sur. 224. D.S.T. 3,821-25 ft.; rec. S.W.; 54 lb. W.P.

H. J. Porter's No. 1 O. G. Garcia, A.B. &M. Sur. 411. T.D. 4,923 ft.; abd.

H. D. Rogers' No. 1 Rossen, R. F. Neeley Sur. 48. S.D. 250 ft.

Shell Oil Co., Inc.'s No. 1 F. Lopez, J. S. Givens Sur. 372. R.U.

Stewart & Nye's No. 1 W. P. Peters, B. S.&F. Sur. 791. Loc.

J. H. Turner et al's No. 1 Society for the Prop. of the Faith, S. B. Childers Sur. 176. T.D. 1,220 ft.; abd.

Falls County

J. Shaunfield's No. 1 Barganier, J. M. Graham Sur. Bds. L.; S.S.O.; T.D. 1,188 ft.; recmtd. csg.; W.O.; cmt. failed to hold.

Frio County

Holland Oil Co.'s No. 1 Anna Witting, Dan T. Price Sur. 6. R.U.

Gonzales County

H. F. Sears and Joe Dixon's No. 1 Martindale Mtge. Co., C. H. Jaeger Sur. S.D. 40 ft.

J. A. Walker et al's No. 1 C. L. Dubose, E. C. Coffman Sur. T.D. 573 ft.; abd.

Guadalupe County

Pat Armstrong's No. 1 Ernst Saeti, J. D. Clement Sur. T.D. 2,679 ft.; abd.

Burton-Garvin & Womack's No. 2 Henry Weil, E. de Los Santos Coy Sur. No. 93. R.U.; T.A.

A. J. Hollifield's No. 1 A. J. Day, Jas. Hinds Sur. T.D. 2,380 ft.; sat. clk.; drlg. ahead.

Knute Evjen et al's No. 1 W. C. Brawner, J. D. Pickens Sur. T.D. 2,372 ft.; 5½-in. csg. 2,300 ft.; reacd.; swbg.

F. D. Spratt's No. 1 Wm. Zuchl, Claiborne Rector Sur. 38. S.D. 728 ft.

Wellington Oil Co. of Dela.'s No. 1 Wells, H.&T.C.R.R. Sur. 5. Spd.

E. A. Weyel et al's No. 1 H. G. Lentz, Vicente Michelli Sur. 52. T.D. 792 ft., sh.; 3-in. csg. 700 ft.; swbg. 2½ B.O. P.D.; gr. 41.8°; I.P. 15 B.P.D.; pmpg.

Hidalgo County

Brinkocter Oil Co.'s No. 1 Daskam hrs. of Miguel Cano, Porc. 45. R.U.

Humble O. & R. Co.'s No. 1 T. A. Ogg, Rio Bravo subd. Drlg. sh. 2,810 ft.

Jim Hogg County

Daubert & Achning's No. 1 A. Vela, Joseph Odom Sur. 572. M.I.M.

Goldruss Drlg. Co.'s No. 1 I. R. Gutierrez, C. Gutierrez Sur. 164. T.D. 3,223 ft.; tstg.; 5½-in. csg. 3,217 ft.; swbd. dry; pmpd. 7 bbl., 6 hrs.; tstg.

Goldruss Drlg. Co.'s No. 2 Gutierrez, Tyler Tap. R. R. Sur. 163. R.U.

Humble O. & R. Co.'s No. 3 Mestena O. & G. Co., Sec. 388, Fowler & Rankin subd., Santa Rita pasture. Drlg. 2,376 ft.

C. A. Nibert et al's No. 1, Yeager Sur. 20. S.D. 1,316 ft.

Jim Wells County

Austin Pet. Co. No. 1 H. M. Reed (8 mi. NW Orange Grove), J. Poitevent Sur. Cmtd. surf. pipe 190 ft.; S.D. 210 ft.

W. L. Hinds' No. 1 Wm. Adams, T.&N.

O.R.R. Sur. 19 5-in. csg. 4,722 ft.; T. D. 4,878 ft.; perf. csg. 4,670-75 ft.; tstd. S.W.

H. H. Howell's No. 1 Clara Driscoll, La Anima Sola gr. Drlg. sh. 1,510 ft.

A. E. McKinzie et al's No. 1 J. H. McGehee, Fred Frank Sur. T.D. 3,380 ft.; abd.

A. F. Sears & A. E. McKenzie's No. 1 J. H. McGehee, 10¾-in. csg. 196 ft.; T.D. 3,508 ft.; abd.

Karnes County

Clyde Eckols' No. 1 J. M. Newberry, Carlos Martinez Sur. T.D. 3,002 ft.; 5½-in. csg. 3,002 ft.; perf. csg. 2,942-48 ft.; tstd. dry gas.

Gar Oil Co.'s No. 1 R. L. Barnett, Alex C. Hunter Sur. S.D. 2,350 ft.

Kendall County

C. M. Dewey's No. 2 Seidensticker, R Davis Sur. No. 20. S.D. 835 ft.

Kimble County

A. L. Bierschwale's No. 1 F. W. Kraeke, Sur. 366. S.D. 1,000 ft.

Kinney County

Cooper Gas Co.'s No. 1 L. L. Farr, Geo. L. Bledsoe Sur. 835. R.U.

La Salle County

John Vivian's No. 1 Louis Yeager, A.B &M. Sur. 53. Cd. O.S. 699-703 ft.; 5½-in. csg. 696 ft. (cor.); swbd. S.W.; S.D.; T.D. 714 ft.; abd.

Louis Yeager's No. 1 fee, A.B.&M. Sur. 53. Cg. 660 ft.

Lee County

Fred Pederson et al No. 1 Brown, David Hudson Sur. T. Glen Rose L. 6,600 ft.; drlg. L. 7,110 ft.

Live Oak County

Amory Oil Corp.'s No. 3 Moczygemba S. M. Williams Sur. 115. T.D. 420 ft., abd.

H. F. Baker's No. 1 Herring, Stephen Hays Sur. Drlg. 1,510 ft.

Geo. M. Church's No. 1 Wuthrich, John Turner Sur. 71. Drlg. sh. 450 ft.

G. A. Clemen's No. 1 Alma, E. Jordan Sur. 3. T.D. 1,141 ft.; abd.

L. W. Stieren's No. 3 Lange, Thos. Adams Sur. T.D. 1,497 ft.

McMullen County

W. C. McBride, Inc.'s No. 1 Nueces Ld. & Lvstk. Co., James McGrain Sur. Drlg. 910 ft.

C. D. Scarborough No. 1 First Natl. Bk of Rosebud, Jas. Garner Sur. S.D. 1,680 ft.

Medina County

T. J. Tapp's No. 1 Bendele, F. Sauer Sur 117. T.D. 235 ft.; abd.

York Pet Co.'s No. 1 Kate Smith, Marie Ihnken Sur. 11. Cg. 665 ft., sd.; O.S.

Milam County

Alex Krause's No. 1 Graves, Jackson Hall Sur. 7-in. csg. 1,520 ft.; T.D. 1,540 ft.; blg. brk. wtr.; S.S.O.; abd.

W. H. Lawrence et al's No. 1 J. F. Bartek, Jose De Pena Sur. S.D. 1,592 ft.

Nueces County

John Manley et al's No. 1 Ruegg, Geo H. Pauls subd. of Driscoll ranch. Loc

Nueces Royalty Co. et al's No. 1 J. S. Jolly, M. L. de Herrera gr., Sec. 29. R.U.

H. J. Porter et al's No. 1 A. R. Knetig, DeLores A. & I. Co. Sur. 145. Loc.

Shield Oil Co.'s No. 1 N. S. Fulton, Nueces River Irrg. Park subd., Lot 8, Blk. 4. T.D. 6,015 ft.; abd.

Fred W. Shield et al's No. 1 Meinholdt, M. L. De Herrera gr. 10¾-in. csg. 1,185 ft.; drlg. 2,730 ft.

Southern Minerals Corp.'s No. 1 Robt Whitleff, Rincon De Corpus Christi gr. Drlg. 1,267 ft.

Refugio County

Norsworthy Prod. Co.'s No. 1 Wood John Sinnott Sur. T.D. 6,508 ft. (cor.) S.D.

San Patricio County

Tom Graham's No. 1 Fannie Coates, A. B.&M. Sur., Abst. 307 (E. Mathis field). 10¾-in. csg. 1,073 ft.

Nueces Royalty Co.'s No. 1 Ragsdale, G T. Taber Sur. 10¾-in. csg. 750 ft.

Randon Oil Co. et al's No. 1 B. F. Collins, Ed. J. McGloin Sur. T.D. 4,930 ft.; abd.

Southern Minerals Corp.'s No. 1 Sam Sparks, John Bowen Sur. Drlg. sh. 1,820 ft.

Fred Wood et al's No. 1 C. E. Hart, Wm G. Burgess Sur. Drk.

Starr County

Hebert Aid's No. 1 Raimrez, Jose F Garza, Porc. 71. Drlg. sh. 546 ft.

Clopton, Mitchell et al's No. 1 F. W. Seabury, J. A. Falcon, Porc. 80. 8¼-in csg. 88 ft.; T.D. 2,757 ft.; S.D.; S.W sd.; 5½-in. csg. 1,401 ft.; perf. csg. 1328-33 ft.; flwg. 5 to 8 B.O.P.D.; ¼ in. ck.

C. L. Foster's No. 1 H. Garza, Juan Salinas, Porc. No. 71. S.D. 100 ft.

W. E. Gilbert's No. 1 Escobas, Jose F. Garza, Porc. 71. T.D. 848 ft.; abd.

Interstate Minerals, Inc.'s No. 1 Green & Manning, J. J. Garza Falcon Porc. 81. T.D. 1,732 ft.; 7-in. csg. 1,155 ft.

Lynes & Robertson's No. 1 Villareal, C. C.S.D.&R.G.N.G.R.R. Sur. 241. Loc.

Magnolia Pet. Co.'s No. 2 Yzaquirre, La Sal Colorado gr. Drlg. sh. 6,115 ft.

Sun Oil Co.'s No. 1 Rodriguez, Santa Teresa gr. Drlg. sh. 1,627 ft.

Travis County

J. H. Gray's No. 1 Washington, Jose Antonio Navarro Sur. Drlg. sh. 1,607 ft

Victoria County

Barnsdall Oil Co.'s No. 1-A Keeran, N De Leon Sur. T.D. 7,608 ft.; perf. csg. 7,550-52 ft.

W. S. Boyle's No. 1 P. C. Meyer, Victoria townsite Sur., Blk. 3. T.D. 4,788 ft.; perf. csg. 4,775-80 ft.; flwg. S.W. and some oil.

Mayo and Renwar Oil Co.'s No. 1 Bayer, Garcia Sur. Spd.

Mayo, Thompson Drlg. Co.'s No. 1 Ragsdale, V. Garcia Sur. R.U.

Renwar Oil Corp.'s No. 1 M. L. Stoner, Diego Garcia Sur. T.D. 6,015 ft., sd., O.S. 4,281-83 ft.; 5½-in. csg. 4,378 ft.; perf. csg. 4,261-80½ ft.; rec. S.W.; abd.

Transwestern Oil Co.'s No. 1-G McFaddin, Jules Vairin Sur. T.D. 5,075 ft.

Webb County

Amsco Ref. Co.'s No. 1 R. Y. Vasquez, Morris & Cummings Sur. No. 1089. Loc.

Cash & Reynolds' No. 1 Row & Bonham, D. F. Feips Sur. 1698. R.U.

F. J. Hynes' No. 3 Bruni, Thos. Burtrang Sur. 2184. T.D. 2,765 ft.; make D.S.T.

Learn Oil Co.'s No. 1 T. S. Masterson. C.C.S.D.&R.G.N.G. Sur. 17. T.D. 2,312 ft.; abd.

W. C. McBride, Inc.'s No. 1 Laurel. T.D. 2,717 ft.; abd.

Tide Water Asso. Oil Co. No. 7 Bruni, Blk. 7, M. Arispe gr. (deep test Bruni field). T.D. 8,959 ft.; well blew out; hole bridged; stk. D.S.; prep. to P.B. and test approx. 5,600 ft.; perf. D.P. 5,655-65 ft.

Williamson County

H. C. Lefors' No. 1 H. J. Priesmeyer Jehu Bevil Sur. 56. Drlg. sh. 1,050 ft.

Taylor Ref. Co.'s No. 1 C. F. Hurta, P. Coursey Sur. Drlg. L. 1,258 ft.

Wilson County

W. D. Moore et al's No. 1 Lorenz, Morris May Sur. T.D. 55 ft.; W.O.C.

Zapata County

J. P. Martin et al's No. 1 Serapio Vela, El Grullo gr. Cg. 3,045 ft.

WEST TEXAS WILDCATS

Crane County

Gulf Oil Corp.'s No. 5 M. B. McKnight, Sec. 1, Blk. 21-B, P.S.L. Sur. Drlg. 5,610 ft.

Gulf Oil Corp.'s No. 12 Waddell, Sec. 30, Blk. 26-B, P.S.L. Sur. 12-in. 532 ft drlg. 3,020 ft; making 8,000,000 cu. ft. gas.

Crockett County

Commercial O. & G. Co.'s No. 1 O. W. Parker, Sec. 83, Blk. 1, I.&G.N. Sur. S.D.O. 2,382 ft.; sulf. wtr.

Continental Oil Co.'s No. 1 Todd Unit, SW¼ Sec. 30, Blk. W.X., C.G.&S.F. Sur.; Ordovician test. Topped Simp. at 6,040 ft.; sul. wtr. at T.D. 7,010 ft.; prep. P.B. to 6,600 ft.

Kimberlin's No. 1 J. W. Robbins, Sec. 4, Blk. B, G.C.&S.F. Sur. S.D.O. 1,880 ft.

Moore Bros.' No. 1 Henderson, Sec. 51 Blk. O.P., G.C.&S.F. Sur. C.O.; U.R. 815 ft.

Stanolind Oil & Gas Co.'s No. 4 Todd, Section 30, Blk. W.X., G.C.&S.F. Sur., 330 ft. S of Continental's deep test. Gas sand 1,194-1,217 ft.; oil sand 1,217-19 ft., T.D.; making 2 B.O. and 9,000,000 cu. ft. gas; installing tanks and separator.

Dawson County

Ray Albaugh's No. 1 Dewey Hogg (O. W.D.D.). S.D.O. 4,222 ft.

Ector County

R. H. Gill's No. 1 J. E. Parker, Sec. 12, Blk. 45, T.&P. Sur. M.I.M.

I. T. I. O. Co.'s No. 1 Johnson, Sec. 34, Blk. 43, Twp. 1s, T.&P. Sur. Drk. and R.U.R.

Landreth Prod. Corp. and Shell Oil Co., Inc.'s No. 1 J. L. Johnson, Sec. 43. Blk. 43, Twp. 1s, T.&P. Sur. Drlg. 4,310 ft. to deep pay.

Stanolind O. & G. Co.'s No. 1 W. F. Cowden, SW¼ Sec. 4, Blk. 43, Twp. 1n, T.&P. Sur.; deep-lime test. Spdg.

Gaines County

Oil Well Drlg. Co.'s No. 1 R. E. Sikes. Sec. 10, Blk. 25-A, P.S.L. Sur. R.U. and S.D.

Stanolind O. & G. Co.'s No. 1 T. S. Riley, Sec. 11, Blk. H, D.&W. Sur. Shot 4,762-4,864 ft.; C.O.; bailed 1 bbl. hourly before shot.

Hockley County

Geo. P. Livermore's No. 1 R. D. Glimp, Sec. 8, Blk. X, P.S.L. Sur. Drlg. 5,210 ft.

Irion County

W. S. Kelly's No. 1 Yates, Conrad Poppe Sur. 730. S.D. 205 ft.

Loving County

J. E. Whitesides' No. 1 fee, Sec. 24, Blk. 76. M.I.M.

Lynn County

John L. Baldridge's No. 1 Alma Lbr. Co., Sec. 151, H.E.W.T. Sur. Drld. out 3,570 ft.; S.D.O.

259, Blk. L, B.S.&F. Sur.; Honolulu Oil Co. farmout. Loc.

Guthrie Lake Oil Co.'s No. 1 Mary L. Shoe, Sec. 20, Blk. 8, E.L.R.R. Sur.; 800-ft. test. Spdg.

R. H. Gill's No. 1 W. H. May, NE¼ Sec.

Mitchell County

Ewing & Hanes' No. 1 G. I. Grable, Sec 195, Blk. 3, H.&G.N. Sur.; 1,800-ft. test. Spdg.

Sinclair Prairie Oil Co.'s No. 1 E. E. Erwin, Sec. 1, Blk. 5, H.&T.C. Sur. Drlg. 600 ft.

Pecos County

R. L. Baker's No. 1 White & Baker, Sec. 86, Blk. 194, G.C.&S.F. Sur. Spd. and S.D.

Humble O. & R. Co.'s No. 1 Young, Sec. 33, Blk. 10, H.&G.N. Sur. U.R., T.D. 2,925 ft.

B. McCandless and General Crude Oil Co.'s No. 1 Virginia W. Crockett, Sec. 5, Blk. 110, T.C.R.R. Sur. Tstg. S.G. 4,446 ft.; top Ellenburger 4,401 ft.; no oil shows.

Phillips Pet. Co.'s No. 1 Sarah Byrne, Sec. 114, Blk. 11, H.&G.N. Sur.; lost hole; skidded 50 ft. N; spdg.

Stanley Thompson's No. 1 Elsinore Cattle Co., Sec. 54, Blk. D, G.C.&S.F. Sur. Drld. by 7,073 ft.; 500 ft. S.W. in hole; S.D.O. 7,342 ft.

Superior Oil Co.'s No. 1 V. W. Crockett-Continental Oil Co., Sec. 7, Blk. 110, T.C.R.R. Sur. Drk.

H. C. Walker's No. 1 Alva Reed, Sec. 20. Blk. 10, H.&G.N. Sur. Drlg. 1,425 ft.; 7-in. at 1,420 ft.

Reeves County

T.A.T. Oil Co.'s No. 1 U. G. Orenderff, Sec. 10, Blk. 59, P.S.L. Sur. Drlg. 890 ft.

Scurry County

Coffield & Guthrie's No. 1 Reiter, Sec. 155, Blk. 97, A.T.&T.C. Sur. Drlg. 3,150 ft.

Terrell County

E. M. Thomasson's No. 1 Bates, Sec. 31, Blk. 1, H.&G.N. Sur. S.D. 1,560 ft.

Tom Green County

Johnson's No. 2 Rape, Sec. 2, Blk. 18, H.&T.C. Sur. S.D.O. 370 ft.

Dan Short's No. 1 J. G. Davidson, NW test; S.S.O.&G. 2,660-65 ft.; drlg. 2,890 ft.

Ward County

Gulf Oil Corp.'s No. 5 Wristen, Sec. 18, Blk. 5, H.&T.C. Sur.; scheduled Ordovician test. W.O.C. 9⅝-in. 2,520 ft.

Magnolia Pet. Co.'s No. 2-43 Sealy, Sec. 43, Blk. F, G.M.M.B.&A. Sur. W.O. 2,952 ft., T.D.; making 69,000,000 cu. ft. gas; incr. amt. oil; prep. perf. lnr. 2,908-3,018 ft.; P.B. 2,900 ft.; drlg. out cmt.

Merry Bros. & Perini's No. 1 Bird Hayes, Sec. 148, Blk. 34, H.&T.C. Sur. S.D.R. 1,070 ft.

Yoakum County

Sloan & Zook and T. N. Sloan's No. 1 J. E. Fitzerald, Sec. 22, Blk. D, Gibson Sur., extreme NE cor. of county. 7-in. csg. 4,812 ft.; S.D.O. 5,150 ft.

TEXAS PANHANDLE

Deaf Smith County

Ussan No. 1 Farwell, Sec. 18, Blk. 3, I Sur. C.O. 5,650 ft.

Lipscomb County

Phil O'Neil's No. 1 Jacob Koch, NW¼ SW¼ Sec. 539, T.&T.C.R.R. Sur. S.D 1,100 ft.

Ochiltree County

James R. Macon et al No. 1 W. R. Norris, SW SE Sec. 212, Blk. 43, H.&T.C. Sur T.D. 6,274 ft.; test sec. at 5,000 ft.; est. 6,000,000 cu. ft. gas on D.S.T.; tstg., bailing 6,274 ft.; unloaded csg. at well and preparing to test increasing shows of oil and gas; prep. test.

Potter County

Lee Whitaker No. 1 D. Pavillard, Sec 101, Blk. 2, A.B.&M. Sur. Fish out S.D. 915 ft., csg.

Sherman County

Hagy, Harrington & Marsh's No. 1 W Freeman, Sec. 46, Blk. 2, G.H.&H Sur. P.B. 2,909 ft.; S.D.O.

L.T.I.O.'s No. 1 S. C. Bryant, NW¼ Sec 369, Blk. 1-T, T.&N.O. Sur. Fsg. tools 2,511 ft.

E. C. TEXAS WILDCATS

Anderson County

J. C. Cook's No. 1 Royall & Davey, L. McCloud Sur., NW of Jarvis. Drlg. 1,665 ft.

R. H. Williamson's No. 1 O. G. Rogers, Wm. Greenwood Sur., 6 mi. SW of Elkhart. Fsg. 5,432 ft.

Angelina County

Ginter Bros.' No. 7 Copes hrs., J. Morin Sur., 3 mi. E of Dibol. S.D. 1,810 ft.

Camp County

Harry Moss' No. 1 Jo. Venters, S. Wright Sur., 3 mi. SE Leesburg. O.W. D.D.; O.T.D. 5,710 ft.; R.U. to dpn. to 7,500 ft. Drlg. 6,239 ft.

Cherokee County

C. C. Lanier's No. 1 W. O. Reagan, W. T. Smith Sur., 2½ mi. E of Mixon. Drk.

Falls County

A. H. Bell's No. 2 Garrett, J. Sanches Sur., NE of Lott. S.D. 1,100 ft.

R. D. Salisbury No. 1 W. M. Shankle, J. A. Manchaca Sur., 1½ mi. NE Chilton. P.B. 1,103 ft.; S.D.; W.O.

Fannin County

H. W. English's No. 1 T. W. Ayers, J. D. Seales Sur. S.D. 815 ft.

C. Newburn's No. 1 A. G. Allen, M. Caldwell Sur., 7 mi. NE of Banham. Laying wtr. lines.

Hill County

Carter-Bowland's No. 1 J. J. Atchison estate, E. Carroll Sur., 5 mi. W of Hillsboro. S.D. 85 ft.

Houston County

J. C. Cook and Shell Oil Co.'s No. 1 B. T. Masters, Levina Carpenter Sur., ⅛ mi. NW of Grapeland pool; 10,000-ft. test. C.O. 6,060 ft.; flwg. 1 B.O. and considerable gas; S.I. 6,060 ft.; est. 70,000,000 cu. ft. gas.

J. C. Wynne et al's (Shell Oil Co., Inc.) No. 1 G. E. Dorsey, M. Sallas Sur., 2½ mi. S of Percilla; E 102 ac. of tr.; 10,000-ft. test. D.S.T. 8,541-76 ft.; rec. mud cut with gas and oil; cg. for Rodessa section 9,817 ft.

Kaufman County

T. G. Shaw, Tr.'s No. 1 Angus Wynne, B. S. Newman Sur., 8 mi. E Kaufman; lower Trinity test. M.I.M.

Leon County

Lone Star Gasoline Co.'s No. 2 A. Jones, J. M. H. Jones Sur., Buffalo gas area. Tstd. 275,000 cu. ft. gas and some dist. at T.D. 6,258 ft.; est. 334,000 cu. ft. gas per day.

Limestone County

Peyton Bros.' No. 1 Harris, P. Varella Sur. P.B. to 4,495 ft.; rotating after fsg. job.

Murray Samuell and Zephyr Oil Co.'s No. 2 Cannon Barron, NE part of 320-acre tract in W. G. McKenzie Sur, half mile NE of pool opener. Drk. and R.U.

J. J. Tyrell's No. 1 A. G. Easterling, J. L. Chavert Sur., 11 mi. E of Groesbeck. Drlg. 3,015 ft.

McLennan County

T. M. Smart's No. 1 J. W. Mann, C. O'Campo Sur., 4 mi. S of Waco. S.D. 906 ft.

Nacogdoches County

C. W. Burnaman's No. 1 W. L. Burnaman, H. Hamby Sur., ½ mi. SW of Etoyle. Loc.

Navarro County

J. R. Bunn's No. 1 A. Stroeder, J. White Sur., 3 mi. SE of Navarro. S.D. 3,459 ft.

C. F. Carter's No. 1 Allen Eden, M. Shire Sur., 2 mi. NE of Angus. S.D.O. 1,201 ft.

Guy Sitton's No. 2 R. D. Fleming, John Harris Sur., 450 ft. E of No. 1 dry hole. Drlg. 885 ft.

Red River County

Dave Flesch's No. 1 Bailey, J. Robbins Sur., 1 mi. W of Bagwell. S.D. 3,415 ft.

Kansas-Oklahoma Pet. Corp.'s No. 1 R. H. Ringwald, A. Moore Sur., 3 mi. W of Manchester. S.D. 1,000 ft.

Rusk County

Jeff Bolton's No. 1 Hall Wood, J. I. Sanches Sur., 2½ mi. NW of New Salem. Lost circ. and skd. rig to start new hole. Drlg. 3,300 ft.

Marietta Corp.'s No. 1 E. B. Alford, Thos. Howeth Sur., 1 mi. S of Pinehill. R.U.

A. O. Whittington's No. 1 Kangerga Bros., Ign. Castro Sur., 9½ mi. N and slightly E of Pirtle. S.D. 80 ft.

Smith County

Shell Oil Co., Inc.'s No. 1 H. Campbell, P. Lively Sur., 1½ mi. N of Chapel; 9,500-ft. test. T. Paluxy 5,533 ft.; T. Glen Rose 5,818 ft.; cg. 8,080 ft.

Sun Oil Co.'s No. 1 E. B. Huddle, Wm Dickerson Sur., 2 mi. S of discovery dist. producer in Chapel Hill area Drlg. 4,386 ft.

Trinity County

Gossage et al's No. 1 First Natl. Bnk., B. F. Wright Sur., S of Trinity. R.U. and S.D.

NORTH TEXAS WILDCATS

Archer County

L. B. Burns' No. 1 H. Wilmut, Lot 13, G.N. Smith Sur., Abst. 393 (4,400-ft. semiwildcat). Flwd. 150 B.O. in 3 hrs., 4,376-96 ft.; showed S.W.; P.B. 4,384 ft.; trying to s.o. wtr

Continental Oil Co. and Harry Hines' No. 1 J. L. Anderson, Blk. 23, Anderson Ranch subd. 4,002-ft. dry hole; reblds. drk.

W. B. Hamilton's No. 5 C. E. Graham, J. D. Young Sur. A-1249. 6⅝-in. 5,205 ft.; P.B. 4,930 ft.; perf. csg. 4,750-70 ft.; treated 1,000 gal.; tstg.

Waldo E. Stephens et al's No. 1 Hattie B. Adae, SE part of Blk. 7, Palo Pinto Co. Sch. Lds., 3 mi. SE of Griffin pool. Set 10-in. 100 ft.; S.D.O. 5,100 ft.

Clay County

Frabor-Hodges and Sinclair Prairie Oil Co.'s No. 1 Scaling, G. P. Meade Sur., Abst. 928. 5,502 ft.; S.D.O.

Shell Oil Co., Inc.'s No. 1 M. L. Henderson, 6,000-ft. test, in Blk. 2605, T. E.&L. Sur. S.S.O. 3,419-36; S.S.O. 3,507-19 ft.; flwd. over drk.; possible new pool opener.

Cooke County

Big Indian Oil Dev. Co.'s No. 1 M. P. Morton, SW cor. Sec. 1, E.T.R.R. Sur., Abst. 365. 6⅝-in. 2,509 ft.; S.S.O. 2,509-17 ft.; tstg. (new pool).

Heydrick et al's No. 1 W. Franklin, A. Rodiquez Sur., Abst. 851. Spd. and S.D.

Cottle County

J. E. Burns et al's No. 1 J. E. Moss, Sec. 5, Blk. L, A. Forsythe Sur. Jnkd. 225 ft.; skd. 20 ft. S; S.D. 1,823 ft.

Denton County

Jones Drlg. Co.'s No. 1 H. K. Armstrong L. Moore Sur., Abst. 824. S.S.O. 1,626-32 ft.; flwd. 19 bbl. in 11 hrs.; tstg.

Foard County

Foster Pet. Corp.'s No. 1 E. M. Gamble, 4,500-ft. test; E. 180 ac. of S½ Sec. 13, Blk. A, H.&T.C. Sur. Had gas sd. 2,300-29 ft.; est. 5,000,000 cu. ft.; drlg. 3,320 ft.

Hardeman County

Carter & Taylor's No. 1 Norton, NW cor. 91-ac tr. in Blk. 3, Robt. Young Sur., 16 mi. N of Quanah. S.D. 256 ft.

Jack County

Buffalo Oil Co.'s No. 1 Riddle, S. L. Clark Sur.; Abst. 1944, 3,100-ft. test. Loc.

J. B. Cooper and Paul P. Steed's No. 1 Mathis, J. H. Nesmith Sur., Abst. 1562. Loc.

Hanlon-Buchanan, Inc.'s No. 1 A. T. Smith, NE cor. Sec. 2, S.P.R.R. Sur., Abst. 2175. Drlg. 2,100 ft.

Pitzer & West's No. 1 Sloan, Sec. 2786, T.E.&L. Sur. Rng. 8-in.; cg. dry. sd. 2,770-80 ft.; drlg. 3,840 ft.

Montague County

W. H. Gant and Continental's No. 1 J. L. Brown, Sec. 58, E.T.R.R. Sur. 6⅝-in. 6,843 ft.; brkn. sdy. L. S.O. 6,843 ft.; treat. 8,000 gal. acid (new pool).

Wm. J. Payne's No. 1 T. M. Baker, NW¼ Lot 42, W. J. Wells Sur., Abst. 844, 5,000-ft. test. Loc.

Wilbarger County

King Oil Co.'s No. 1 Waggoner U, Sec. 5, H.&T.C. Sur., Blk. 17. Drlg. 4,458 ft.

Rogers & Cavin's No. 1 A. P. Morris, Sec. 3, Blk. 14, SW of Harrold. Drlg. 2,890 ft.

Wise County

W. F. Holifield et al's No. 1 J. Redell, Rebecca Coleman Sur., Abst. 155, 2 mi. E of Bridgeport. Moved off spdr.

H. M. Muse's No. 1 F. F. Kaker, Blk. 16, Montagorda Co. Sch. Ld. Pits.

Young County

Burns Oil Co. (Floyd Scott) No. 1 W. J. Rhoades, SW B. F. Kutch Sur. Abst. 1333. Drlg. 3,257 ft.

Cosden Pet. Corp.'s No. 1 W. E. Steele est., NE part of R. M. Burton Sur., Abst. 8, 7 mi. SE Graham. 4,200-ft. test. Drlg. 3,340 ft.; tight hole.

H. W. Dyer's No. 1 M. G. Cheney, M. L. Terry Sur., Abst. 1261. Drlg. 450 ft.

L. A. Long's No. 1 J. S. Williams, 3,000-ft. test in NE part of S. H. James Sur., Abst. 1465. 8¼-in. csg. 1,710 ft.; S.S.O. 1,720-30; tstg.

K. R. March's No. 1 Ed. Burton, NE cor. Blk. 99, J. A. True Sur., Abst. 1640. 4 mi. SE Graham, 4,250-ft. test. Drlg. 2,050 ft.

A. T. Strong et al's No. 1 E. C. Stovall, Sec. 2946, T.E.&L. Sur. (4,800-ft. test). Drlg. 2,665 ft.

Taubert & McKee Drlg. Co.'s No. 1 Shanafelt, P. Pointevent Sur., Abst. 1309. 6⅝-in. 4,012 ft.; treating 2,000 gal. acid 4,437-4,500 ft.; P.B.; H.F.W. 4,398-4,410 ft.; tstg.

EAST TEXAS

(Border Counties)

Harrison County

M. & H. Oil Co.'s No. 1 Vaughn, A. P. Hope Sur. Drlg. sh. 1,868 ft.

Marion County—Other

A. F. Anding's No. 1 Duke Hart, M. G. Noll Sur. Drlg. clk. 1,850 ft.

Tom Bell's No. 2 Moseley, D. Lane Sur. T.D. 2,623 ft.; prep. tst.; set 6⅝-in. csg. 2,500 ft.

H. N. Binge's No. 1 W. P. Stiles, 950 ft. S, 4,900 ft. E NW cor., M. G. Nall Sur. Set 10-in. csg. 42 ft.; S.D. 910 ft.

R. W. Cosby's No. 1 Stiles, J. G. Reeves Sur. Swbg.; T.D. 2,406 ft., sdy. sh.

M. D. Fitzwater's No. 1 Mrs. Mary Duncan, Jesse Fitzgerald Sur. T.D. 2,577 ft.; S.D.O.

J. D. Reynolds' No. 4-B Terry est., 1,900 ft. SL, 200 ft. EL, W. Coore Sur. R.U.

J. D. Reynolds' No. 5 Terry est., W. Coore Sur. T.D. 2,359 ft.; W.O.S.R.

Sanders & Wyckliffe's No. 1 W. P. Stiles, M. Noll Sur. Cg. 2,010 ft.

Marion County—Rodessa

Ark. Fuel Oil Co.'s No. 1 G. H. Barnes, 948 ft. S, 1,055 ft. E, NW cor., 283-ac. tr., Richardson Sur. Drlg. 3,995 ft.

Tippett Drlg. Co.'s No. 2 Howard, 540 ft. NL, 933 ft. SW No. 1, John Hanks Sur. 5½-in. csg. 6,039 ft.; T.D. 6,058 ft.; W.O.C.

Shelby County

W. H. Neel et al's No. 1 J. W. Hanson, C 64-ac. tr., A. Sanford Sur. M.I.M.

WEST CENTRAL TEXAS DISTRICT

Brown County

A. D. Bruce's No. 1 L. S. Mauldin, SW¼ Sec. 15, H.T.&B. Sur., Abst. 464. S.D. 1,691 ft. (may D.D.).

Shallow Oil, Inc.'s No. 1 S. M. Black, Wm. Ranch road, 7½ mi. SE Brownwood. Drlg. 410 ft.

Wilson Oil Co., inc., No. 1 M. Bowden Sec. 135, W. E. Gilliland Sur. S.D.O. 2,100 ft.

Callahan County

Reeves' No. 1 Alexander, NE part of Sec. 12, E.T. R.R. Co. Sur. U.R. csg. 750 ft.

Coleman County

Kynaston-Culbertson-Culbertson & Bozeman No. 1 J. P. McCord, Sec. 150, J. W. Meeks Sur. S.D.O. 2,300 ft.

J. C. Ort's No. 1 Emet Walker, SE cor. Hicks Sur. W.O.C. 700 ft.

E. B. Tinsley and C. C. Campen's No. 1 W. Webb, H. Odle Sur. 178. Drlg. 530 ft.

Concho County

Natural Resources Corp.'s No. 1 Armor, Sec. 105, Blk. 72, T.&N.O. Sur. R.U. to D.D.

Coryell County

W. E. Crews' No. 1 S. C. Blanchard, W part of Wm. H. King Sur., 2 mi. SW of Mound, 5,000-ft. test. Loc.

Eastland County

R. R. Groce's No. 1 J. M. Rush, Sec. 130, Blk. 3, H.&T.C. Sur. S.D.O. 1,728 ft.

F. S. Holden's No. 1 J. F. Nichols, L. A. McDonals Sur., Abst. 829. Drlg. 2,915 ft.

J. L. Reeves' No. 1 J. V. Parker, NW part of Wm. Van Norman Sur. Fsg. 3,077 ft.; S.S.O. 3,019-41 ft.; drlg. by tools 3,077 ft.

W. A. Stiles et al's No. 1 H. F. Duncan, Sec. 10, Blk. 2, H.&T.C.R.R. Sur. Pits.

Erath County

T. Gray's No. 1 C. Young hrs., NW cor. of Stephen Smith Sur., Abst. 682. S.D.O. 89 ft.

T. G. Jackson No. 1 J. W. Taylor, Prater Sur., Abst. 1029, 4 mi. NE of Desdemona. S.D.W.O. 2,400 ft.

J. F. Morissey et al's No. 1 R. J. Sikes, J. Hargrave Sur., 6 mi. N of Stephenville; 5,000-ft. test. Drlg. 575 ft.

Fisher County

S. and D. Daube's No. 2 Bennett, NE¼ Sec. 51, Blk. 2, H.&T.C. Sur. S.D. test lime 3,687-3,704 ft.; swbd. 28 B.O. and 4 B.W. daily at 3,640 ft.; T.D. 3,705 ft. S.D. 3,705 ft.; no test.

Hamilton County

Wallace & Vickers' No. 1 C. C. Lund, J. P. Bailey Sur. 51. S.D.O. 3,453 ft.

Haskell County

K. N. Nowels' No. 12 M. S. Pardue, SW cor. Sec. 1, S.F.I.W. Sur., 4½ mi. east Stamford. Drlg. 2,600 ft.

Jones County

Danciger O. & R. Co.'s No. 1 B. P. Davenport, NE¼ Sec. 23, D.D.&A. Sur. S.D.O. 3,454 ft.

Danciger Oil & Ref., Inc.'s No. 1 P. V. Nelson, SE¼ Sec. 186, B.B.B.&C. Sur., 4 mi. SE Stamford. Loc.

T. D. Humphrey's No. 1 H. C. Hall, SE Sec. 1, Blk. 17, T.&P. Sur., 5 mi. N of Hawley pool. Loc.

Keeler's No. 1 Radford, SE¼ Sec. 20, Blk. 4, H.&T.C.R.R. Sur. S.D.O. 1,800 ft.

Pet. Prod.'s No. 1 Roberts, NE¼ Sec. 36, Blk. 15, T.&P. Sur., link test between Lewis and Steffens pools. Prep. drill plugs in Bluff Creek sd.

W. F. Sneboid's No. 1 J. Jeffreys, Sec. 7, Blk. 15, T.&P. Sur., 1½ mi. W of Sandy Ridge pool. Drlg. 1,810 ft.

Johnson County

Geo. C. Foster's No. 1 Pennington, C W 40 ac. of J. E. Pennington 247-ac. tr., ½ mi. SW of Cleburne; contract depth 3,500 ft. Loc.

Mills County

A. W. Tanner's No. 1 M. J. Ivy, M. Rhyne Sur., 2 mi. SW of Ebony; contract depth 1,450 ft. Loc.

Nolan County

Green & Owens' No. 1 Tipton, Sec. 43, Blk. 19, T.&P. Sur. Sat. from 5,135-38 ft.; swb. 30 B.O. and 6 B.W. daily.

Plymouth Oil Co. No. 1 F. M. McClure, Sec. 49, Blk. 23, T.&P. Sur., 8,000-ft. test. Top Ellenburger 6,965 ft.; sul. wtr. 7,340 ft.; S.D., W.O.

Palo Pinto County

J. Jones' No. 1 R. H. Gauldin, NW cor. Sec. 1743, T.E.&L. Sur. C.O. 1,036 ft.

Palo Pinto O. & G. Co.'s No. 1 F. A. Johnson, Sec. 61, Burleson Co. Sch Lds. Drlg. 3,330 ft.

Parker County

Brown & Gardner Bros.' No. 1 Gilbert, T.&P. Sur., Abst. 1958. Drlg. 3,804 ft.

Shackelford County

Georgian Oil Corp.'s No. 1 Blach ranch, C NE¼ of T.E.&L. Sur. No. 390, 10 miles NE of Albany, Ordovician test. Drlg. 1,910 ft.

Jones-Stasney & Groover-Rose's No. 1 Winnie Wentz, Sec. 13, Blk. 3, H.& T.C. Sur. S.D. 3,175 ft.

Stephens County

Pitzer & West and Brazos-Young Oil Corp.'s No. 2-B N. G. Price, SE cor. E½ SW¼ Sec. 67, B.A.L. Sur. Rng. csg. 3,976 ft.; est. 1,000,000 to 2,000,000 cu. ft. gas in L. 3,970-76 ft.; fsg. 3,976 ft.

Stonewall County

Shell Oil Co., Inc.'s No. 1 A. E. Smith, Sec. 143, Blk. 1, H.&T.C. Sur.; 6,000-ft. test. S.S.O. 4,395-97 ft.; drlg. ahead.

Throckmorton County

Normandie Oil Corp.'s No. 1 Travis Co. Sch. Lds., Sec. 37, Abst. 254, 5,500-ft. test. R.U.

Canadian Fields

(Continued from Page 70)

gravity crude. Farther west, on the Alberta side, Lloydminster Royalties' No. 1 went to 1,921 ft. to get production; indicating that the high point of the structure is on the Saskatchewan side of the provincial boundary.

In the Vermilion field, Franco-Vermilion's No. 1, Section 14-49-5w4, has been deepened to 1,620 ft., encountering oil shows below the gas horizon. It is waiting for pump to make production test.

British Columbia Test

In the Peace River block of northern British Columbia, the provincial government has located its No. 1 test in the vicinity of Commotion Creek, a tributary of Pine Creek. About 35 miles of road will be built this winter and equipment moved in to start drilling next May.

East Texas Fields

(Continued from Page 65)

well on the Chapel Hill structure. Shell's No. 1 Campbell, P. Lively Survey, 2 miles northeast of Hunt Oil Co.'s pool opener of about 1½ years ago, is coring below 8,075 ft. Several thin zones of porous lime have been cored, but none has carried a significant show of either oil or gas. About 2 miles south of the pool opener by Hunt Oil Co., Sun Oil Co.'s No. 1 Huddle, Dickinson Survey, has been bottomed at 4,408 ft. in Georgetown lime to set second string of casing. The test drilled the Austin chalk formation from 3,745 ft. to 3,934 ft.

Camp County's deep Trinity wildcat, H. S. Moss' No. 1 Joe Venters, S. Wright Survey, 3 miles southeast of Leesburg, was drilling below 6,405 ft. The test entered the upper Glen Rose section at 5,903 ft. and is credited with finding the first anhydrite stringer at 6,150 ft. Contract depth of the test is 7,500 ft. It is McGlothlin's old test quit at 5,710 ft. and turned to Moss for deepening.

EAST TEXAS FIELD COMPLETIONS

(1-hour gage)

Gregg County—Longview Area

Bijo Oil Co.'s No. 1 W. E. Bolton, dry and abandoned at total depth 3,552 ft. Washington Oil Co.'s No. 11 Cobb heirs. 3,532-41 ft., 72 bbl.

Rusk County—Joiner Area

Mrs. E. Skeen's No. 1 M. M. Cross, 3,652-3,709 ft., 60 bbl. Hunt Oil Co.'s No. 29-D Bradford, 3,544-3,628 ft., 30 bbl. on gas lift.

EAST CENTRAL TEXAS COMPLETIONS

(24-hour gages)

Anderson County

In the Cayuga pool Tide Water-Seaboard's No. 4-C Wills, T. Bristow Survey, 3,906-4,084 ft., 85,000,000 cu. ft. of gas.

Freestone County

A wildcat, A. G. W. Biddle's No. 1 Nettles, Y. G. Dollahite Survey, 6 miles northeast of Fairfield, dry and abandoned at total depth 4,115 ft.

Henderson County

A wildcat, Hunt-McMillian's No. 3 Dillard, H. Jeffreys Survey, dry and abandoned at total depth 3,149 ft.

Houston County

In the Grapeland pool J. C. Cook's No. 1 Perrone, N. Wade Survey, found gas sand from 5,750-88 and from 5,834-69 ft. but was plugged at a total depth of 5,916 ft.

In the Navarro Crossing pool Humble Oil & Refining Co.'s No. 4 Dailey, J. L. Riviere Survey, 5,847-54 ft., 131 bbl. daily.

Nacogdoches County

A wildcat, Melrose Oil Co.'s No. 1 C. N. Wilson, John Hall Survey, 10 miles east of Nacogdoches, dry and abandoned at 1,153 ft.

Van Zandt County

A wildcat, Hickok & Reynolds' No. 1 DuBose, J. Stockwell Survey, dry and abandoned at total depth of 4,514 ft.

Four Million Car Output This Year Predicted

DETROIT, Mich.—Automobile production in 1939 will total approximately 3,720,000 assemblies, Ward's Automotive Reports said in summarizing the past year as the tenth best year in the history of the industry.

Automobile production was 2,655,171 in 1938, giving 1939 a gain of more than 1,000,000 units. Looking to the future, Ward's survey said indications were that 1940 would reach 4,000,000.

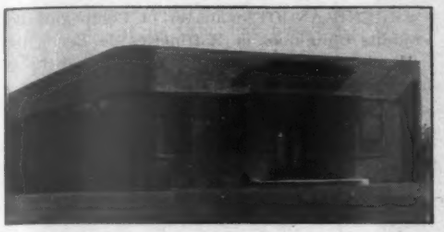
To Substitute Natural Gas In Lancaster County

HARRISBURG, Pa.—The Metropolitan Edison Co. of Harrisburg, Pa., has asked the Pennsylvania State Public Utility Commission to permit it to substitute natural gas for manufactured gas for 1,049 consumers in Marietta, Elizabethtown, East and West Donegal townships of Lancaster County, Pennsylvania.

New or Improved Equipment

Bowen Moves Into New Office Home in Santa Fe Springs

The new office building of S. R. Bowen Co., which forms part of a program expanding that concern's facilities in a centralized location, is now occupied, thus



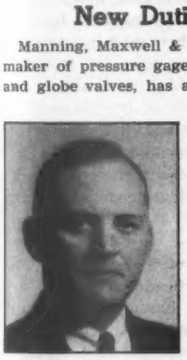
transferring the business headquarters from Huntington Beach to Santa Fe Springs, Calif.

Growth of domestic and foreign business demanded larger office and manufacturing facilities, so Mr. Bowen purchased a 12-acre plot at Lakeland and Norwalk roads, Santa Fe Springs. A central warehouse was constructed here first and from it all the company's stores draw their stocks of fishing tools and other specialties. The new office building, recently completed, houses the sales, credit, purchasing, and accounting departments. Plans are under way for construction of a factory building and to have the entire business conducted at Santa Fe Springs.

Since the new location is more accessible, arrangements are being made to display the company's tools to representatives of foreign operators, local purchasing agents and others interested.

New Duties for Brendel

Manning, Maxwell & Moore, Inc., Bridgeport, Conn., maker of pressure gages, safety valves, thermometers, and globe valves, has advanced Louis H. Brendel. He will assist C. H. Butterfield, general sales manager. Mr. Brendel's new duties will include supervision of sales promotion and jobber relations for the Ashcroft American Gauge Division, Consolidated Safety Valve Division, American Schaeffer & Budenberg Instrument Division, and Hancock Valve Division. Previously Mr. Brendel served as assistant sales manager of the Hancock Division. His sales promotion and merchandising methods used in introducing Hancock "500 Brinell" valves are well known to industrial valve users.



Notable Progress Made in Arc Welding, Says 1939 Review

Progress in arc welding during the year has been outstanding, notably in the fields of carbuilding, shipbuilding, and heavy-machinery construction, according to the "Welding Review" for 1939, prepared by W. W. Reddie, Westinghouse Electric & Manufacturing Co.

"This has not been due so much to new developments in welding machinery, electrodes, and technique," says the review, "as to the expansion in the business of the industries named. It is a tribute to welding manufacturers collectively that their products were developed to the point where they were ready for the immediate service of industry at a time when it was essential to increase production from a low level to peak proportions, literally, almost over-night.

"The increase in the use of alternating current as a source of welding power, using transformer-type welders, has been outstanding during the year. This has taken two directions, first the use of unusually large amounts of power for automatic systems of welding and second the use of unusually low welding currents. Alternating-current transformer-type welders have been found to supply the need for high-current, heavy-duty welding most efficiently and economically and the development has taken the trend to 1,000-amp. units."

Here and There With Men Who Manufacture Equipment

R. E. Walker, district manager of American Rolling Mill Co., and L. S. (Spider) Allen, of National Tank Co., who sells Armco surface casing throughout the Mid-Continent, visited the American Rolling Mill plant in Middletown, Ohio, recently.

Paramount Equipment Co., Tulsa, has added the following sales representatives to handle its full line of oilfield specialties, including the Universal hoisting and pulling tool, the Liftug: Shermerhorn Young Sales Co., Dallas and Fort Worth, for Texas; M. L. Jackson, Shreveport, La., for Arkansas, northern Louisiana, and Mississippi; Urquhart Service, Denver, Colo., for all intermountain states; Burton & Christenson, Los Angeles, Calif., for California. T. W. McCuiston, Tulsa, will cover Oklahoma and Kansas on the Liftug only.

Don S. Bowers, vice president and general manager of W. C. Norris, Manufacturer, Inc., Tulsa, attended a directors' meeting of the National Association of Manufacturers in New York. He is the only director of this organization from Oklahoma.

Acme Well Supply Co., New York, has moved its offices to 19 Rector Street, Suite 1909.

Contract Goes to Worthington

Atlantic Refining Co. has awarded to Worthington Pump & Machinery Corp. the contract for cargo discharge and circulating pumps for a 19,405-ton all-welded tanker to be built for Atlantic at the Sun Shipyards, Chester, Pa.

Dorresten Made Sales Engineer

Bechtel-McCone-Parsons Corp., refinery contractor, recently announced that Edward Dorresten had joined its staff as a sales engineer. Mr. Dorresten attended California Institute of Technology and was graduated from Stanford University. He has had a wide experience in the field of refinery engineering and construction.

During the 9 years immediately preceding his addition to the Bechtel-McCone-Parsons organization. Mr. Dorresten was district manager for E. B. Badger & Sons Co.

Lincoln Sponsors Welding Study

A 2½-year program of scientific study, which will culminate in payment of $200,000 in awards, is announced by the James F. Lincoln Arc Welding Foundation. The 458 awards, ranging from $13,700 to $100 are for studies bringing out benefits of a social, economic, or commercial nature, such as reduction or elimination of hazards to safety and health, greater availability of comforts and conveniences through reduced prices, greater utility and durability of machines and structures as well as industrial benefits such as cost savings and other advantages in manufacture, fabrication, or construction. Studies will concern machines, products, and structures of all types, including automobiles, trucks, buses, airplanes, locomotives, freight and passenger cars, street cars, ships, etc.

Nobody Wants "Sloppy Sam" to Loaf Around His Department

The quaint character pictured here is said to have proven a painless, effective solution to one of industry's paramount operating problems—that of promoting safety and efficiency through plant cleanliness.

"Sloppy Sam" is the unkempt person's name, and he's a brain child of the plant inspection committee in the Buffalo, N. Y., steel service plant of Joseph T. Ryerson & Son, Inc. Sam is given lodging in departments proclaimed substandard by the committee during its weekly inspection tours. His visits evoke good-natured chiding from members of other departments who in turn make a definite effort to keep their departments clean so the unwelcome visitor will have no reason to call on them. The results of this humorous approach to the cleanliness problem were so favorable that duplicates of Sam were made for the company's other plants. The figures are flame-cut by Ryerson from rolled steel plate and painted in bizarre colors. As cleanliness is a definite contribution to safety and efficiency in any industry, Ryerson's successful sugar-coated approach to this problem can undoubtedly be used to advantage by operating departments in almost every factory or plant.

Link-Belt Promotes Hoffman

Ralph M. Hoffman, vice president and sales manager of Link-Belt Co., Pacific division, San Francisco, for the last 8 years, has been appointed assistant to the president of the parent organization, Link-Belt Co., with headquarters in the company's general office in Chicago. Mr. Hoffman, a graduate mechanical engineer, University of Minnesota, 1911, went to the organization in 1923 as manager of Link-Belt Meese & Gottfried Co.'s Seattle branch.

For Reworking Clogged Wells

McEvoy Co., Houston, Tex., has announced a drillable button screen made of Securaloy pipe with Securaloy buttons, to permit economical reworking of clogged wells. If the screen is stuck so that it cannot be pulled when reworking is necessary, it can be completely drilled out in a short time, making an expensive fishing job unnecessary. McEvoy drillable button screen is available with either flush or coupled joints, and is especially recommended for deep wells or wells in which silt clogging is a serious problem.

New Type of Rotary Hose Has Built-In Leakproof Coupling

Two types of rotary hose for use in rotary drilling operations, distributed by Continental Supply Co., Dallas, Tex., now incorporate a built-in, leakproof coupling. Available in both "Super Rough Rider" and "Rough Rider" brands, it is an integral part of the product.

The built-in coupling eliminates the necessity of flanges, nozzles, bolts, nuts, clamps, or hydraulic nipples. Made of the toughest alloy steel obtainable, the coupling is said to have been shown to be leakproof in field tests. Literature is available from the company.

Personal Paragraphs

M. C. McGEHEE, JR., president of the Texas Gulf Producing Co. at Houston, Tex., left last week for a New Year's Day week end in Mexico City, Mex.

GORDON C. GRASTY, independent operator, now drilling a northeastern Mississippi wildcat, spent the holidays in Texas.

WALTER B. PYRON, Houston, Tex., executive vice president of the Gulf Oil Corp., was presented with a gold dress saber, gold belt, and silver shoulder stars by the Houston Chamber of Commerce and members of the Air Corps, Thirty-sixth Division, Texas National Guard. The presentation was in recognition of Mr. Pyron's public service to the city of Houston.

EARL MATTHEWS, of Houston, Tex., and in charge of leasing contracts of Shell Oil Co., Inc., arrived in Los Angeles, Calif., last week.

J. D. HUNNICTT, land man with Shell Oil Co., Inc., was recently transferred from Houston to Tyler, Tex. J. R. MOORE, with the same company in Kilgore, has been moved to Mansfield, La.

L. J. LYNCH has been named general superintendent of the Shreveport division, Ohio Oil Co., succeeding J. S. HASSON, retired. W. F. BALDWIN succeeds RALPH A. BURDICK, retiring as division cashier and office manager.

JOHN E. PALMER, geologist of Humble Oil & Refining Co., with headquarters at Houston, Tex., is in Los Angeles, Calif., en route home after conducting a geophysical exploration survey in Papua, New Guinea.

HOWARD BOYD, land man for the Magnolia Petroleum Co. and stationed at Evansville, Ind., was in the company's central office in Dallas, Tex., last week preparing to start a several days' tour throughout South and West Texas. He plans to return to Dallas this week after which he will return to Evansville.

MAJ. FREDERICK BURNHAM, of Dominguez Oil Fields Co., formerly Burnham Exploration Co., is recuperating in excellent shape from an illness that has caused some concern among his friends. The major is doing nicely, however, and will be back at his office in Los Angeles, Calif., soon.

W. K. LINK, chief geologist with the Standard Oil Co. of Louisiana at Shreveport, La., is on vacation in Milwaukee, Wis.

M. BOWMAN THOMAS, engineer for the Humble Oil & Refining Co. at Houston, Tex., has been appointed engineer in charge of the petroleum engineering department.

GEORGE DAVIDSON, formerly in the technical division of Shell Oil Co., Inc., at Wood River, Ill., was aboard the Dixie Clipper when it left New York December 19. Mr. Davidson has been transferred to Manchester, England. He was recently elected a fellow of the Institute of Chemistry of Great Britain and Ireland.

C. E. REISTLE, JR., has been appointed chief petroleum engineer of the engineering department of the Humble Oil & Refining Co., at Houston, Tex.

CHARLES J. POWER, scout for the Union Producing Co. at Jackson, Miss., has been promoted to district land man in charge of the Beeville district. Mr. Power succeeds ALWYN P. KING, who was promoted to district manager of the Beeville district.

EUGENE ANGOT, manager of Compagnie des Produits Chimiques et Raffineries de Berre, left Port Washington, Long Island, December 19 returning to Paris, France, aboard the Dixie Clipper after spending several days in the United States on business connected with the company's refinery at Berre, near Marseille.

A. S. RUSSELL, who entered employ of Standard Oil Co. of California as an engineer in 1911 and who later became chief engineer and a member of the board of directors, has been elected vice president of the company, filling the vacancy caused by the retirement of R. W. HANNA. J. L. HANNA, who entered employ of Standard as a still fireman in 1909 and who has been general manager of the manufacturing department since 1933, has been elevated by election to the board of directors and will make his headquarters at the home office of the company in San Francisco.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

A total of 8,297 wells were completed in Oklahoma and 22,434 wells in the United States in 1914.

Twenty-eight separately owned pipe lines are serving the Cushing, Okla., field. Most of them convey oil from wells to producer-owned tank farms within the field.

Huasteca Petroleum Co. has an 800,000-bbl. concrete reservoir at its Tampico, Mexico, terminal. The top of the reservoir covers a greater area than a regulation baseball field.

Dana H. Kelsey, retiring Indian agent at Muskogee, Okla., has been appointed special supervisor to Indian Commissioner Cato Sells.

20 YEARS AGO

Mid-Continent crude is raised to $3 per barrel on January 6, Pennsylvania Grade crude was raised to $5 per barrel on December 31, 1919, the highest price since 1871.

Over 100 men traveled from Erie, Pa., to Bartlesville, Okla., on the strength of a false report in Erie that a pipeline company sought workmen at wages ranging from $15 to $20 per day.

Standard Oil Co. of Indiana contracts to buy 2,000,000 bbl. of gasoline and 1,000,000 bbl. of kerosene from Cosden & Co. of Tulsa.

The late Henry M. Tilford, once an officer in the Standard Oil Co., left a fortune estimated at $17,000,000.

10 YEARS AGO

In the first week in January 1930 crude-oil production in the United States averaged 2,246,348 bbl. per day.

A submergible electric oil-well pump is a recent invention which has been used with success.

FRANK CASTLEBERRY, scout for Atlantic Refining Co., has been transferred from the Shreveport, La., office to Jackson, Miss.

JAMES L. TAYLOR, independent oil operator of Evansville, Ind., is spending the Christmas holidays in his former home town of Midland, Tex.

SIDNEY A. PACKARD, chief geologist with the Arkansas Fuel Oil Co., Shreveport, La., spent the holidays in Monterrey, Mexico, accompanied by his family.

P. J. RYAN, of Standard Oil Co., who makes his headquarters at Caracas, Venezuela, has arrived in California on a combined business and pleasure trip.

A. PAAP, of Standard Oil Co., with offices in Amsterdam, Holland, is spending a vacation period on the West Coast, and will combine some business during his visit.

R. V. CROSBY, of San Angelo, Tex., and HUBERT ARMBRUSTER, of Houston, Tex., have returned from Greece where they were engaged in exploration for oil by the Helis Petroleum Co.

ROBERT ROTH, with the Humble Oil & Refining Co.'s geological department; L. E. PATTERSON, geologist with Cities Service Oil Co., and KARL MYGDAL, geologist for Pure Oil Co., all of Wichita Falls, Tex., delivered papers covering West Central and North Texas last Tuesday night at a meeting of the North Texas Geological Society at the Wichita Club in Wichita Falls.

PAUL BENEDUM, independent operator, Houston, Tex., and Mrs. Benedum have been spending the holidays on a ranch party in Mexico.

ADRIAN MOORE, independent operator, Houston, Tex., and Mrs. Moore, have been spending the holidays with their daughter and family at Winston-Salem, N. C.

COMMISSIONER EWIN L. DAVIS, vice chairman of the Federal Trade Commission during 1939, has been elected to serve as chairman during 1940. The chairmanship rotates annually.

PROF. ELIOT BLACKWELDER, of Stanford University, was elected president of the Geological Society of America at the fifty-second annual meeting of the society in Minneapolis, Minn.

ROD FORSYTH, recently transferred from the Dallas, Tex., offices of the Seaboard Oil Co. to its Evansville, Ind., office, was back in Dallas last week to spend the holidays. He is district geologist for the company in the Illinois and Indiana area.

J. O. CAMPBELL, JR., petroleum engineer in the Osage district for Carter Oil Co., has been transferred to the company's southern Oklahoma scouting division, working out of Ardmore. T. G. PRICE, veteran southern Oklahoma scout, has been assigned temporarily as senior scout at Jackson, Miss.

E. E. SLINGERLAND of Bradford, Pa., was elected treasurer and H. W. WALCHLI was made assistant secretary of Allegany Refiners, Inc., at a recent stockholders' meeting in Bolivar, N. Y. Mr. Walchli was recently made general manager of the refinery at Bolivar. A. L. SHANER was reelected president of the company.

Texan Returns to Texas

When Robert W. McIlvain, Jr., arrived in Olney, Ill., in the spring of 1936 as manager of Pure Oil Co.'s Illinois producing division, his organization there consisted of a small but capable group of land men. That was all he needed for a while, but 3½ years have wrought a transformation. When Bob, as he is known throughout Pure Oil's producing operations, returned to Texas recently to take up his new appointment in Fort Worth as division manager of Pure Oil's Texas producing division, the Illinois oil-field organization had expanded to several hundred employes and he had supervised the drilling of more than 600 wells in that area.

R. W. McILVAIN, JR.

Mr. McIlvain was born in Henrietta, Tex. After taking a degree in industrial engineering at Yale in 1931 he set out on a course designed to familiarize him with the details of oil-field practice. First he went on tour as a tool dresser in the newly opened Michigan fields. Later he was an operator's helper in a gasoline plant at Van, Tex. Then he worked as a roustabout in the Texas and southwestern producing divisions. Following that he took a turn as a pumper in the Seminole, Okla., field before being transferred to Pure's engineering department in Chicago. Before the Illinois field was opened he had served as assistant division manager in Houston, Tex.

In returning to Texas Mr. McIlvain succeeds Raymond B. Kelly, who in turn has been assigned to Olney, where he is directing Pure's producing operations.

DANIEL T. PIERCE, assistant to the chairman of Consolidated Oil Corp., left New York December 29 on a cruise to Caribbean ports.

EDWARD F. HOWARD, assistant treasurer of the International Petroleum Co., Toronto, left New York aboard the Santa Paula last week en route to Colombia.

C. M. CHASE, scout for Sun Oil Co. in the West Texas and New Mexico district, passed through the company's Dallas, Tex., offices last week en route to South Texas for his vacation, it having been postponed from last summer.

DONALD O. JONES, who resigned recently as assistant to the general superintendent of the Rocky Mountain division of the Continental Oil Co., has become associated with the Resolute Oil Co. and will make his headquarters at Powell, Wyo.

JOHN L. BULLOCK and J. L. JOHNSON, superintendent and assistant superintendent, respectively, of the Hunter Co., have returned to Shreveport, La., from a business trip to Mexico, where the company has producing properties.

RAYMOND WEAVER, scout for Sun Oil Co. in South Mississippi, visited the home office in Dallas, Tex., over the holidays and learned that his district office is to be moved from Hattiesburg to Jackson, the company having recently opened a branch land department office there.

F. F. BOKERN, Mabee Oil & Gas Co. of Delaware, is the new head of a branch office opened last week in Dallas, Tex. JOHN E. MABEE, head of the firm, has covered the West Texas operations of the company out of his Tulsa office for the past several years. They will now be covered out of Dallas.

LEIF H. OLSON, partner in the Olson Drilling Co. of Tulsa, has moved to Fort Worth to open a Texas branch of the company. The family having moved from Ada, Okla. The new office will handle the company's West Texas operations.

R. H. FOSTER, executive vice president of Landreth Production Corp., Fort Worth, Tex., who has been recovering from a major illness in a Forth Worth hospital for the past 2 weeks, is expected to return to his home early this week.

SHIFTS: J. E. BACKMAN, geologist, Gulf Research & Development Co., from Weatherford, Okla., to Pittsburgh, Pa.; W. R. KENNEDY, engineer, Texas Co., from Nocona, Okla., to Wichita Falls, Tex.; J. D. TURNER, geologist, Carter Oil Co., from Chamberlain, S. D., to Santa Anna, Tex.; K. M. LAWRENCE, geologist, Amerada Petroleum Corp., from Tuscaloosa, Ala., to Jasper, Ala.; JOSEPH A. HEALY, manager, Belcher Production Co., from Pass Christian, Miss., to Miami, Fla.; G. E. BATES, president, Fortune Petroleum Corp., from Wilmington, Calif., to Santa Ana, Calif.; ROBERT S. COOKE, engineer, Carter Oil Co., from Seminole, Okla., to Tulsa.

J. HOWARD MYERS, Atlantic Refining Co., Philadelphia, Pa., has been appointed chairman of the American Petroleum Institute accident prevention committee for 1940.

JUDGE A. A. CARPENTER, retiring chairman of the Alberta Public Utilities Board, was guest of honor at a complimentary dinner given by the Alberta Petroleum Association at Calgary recently.

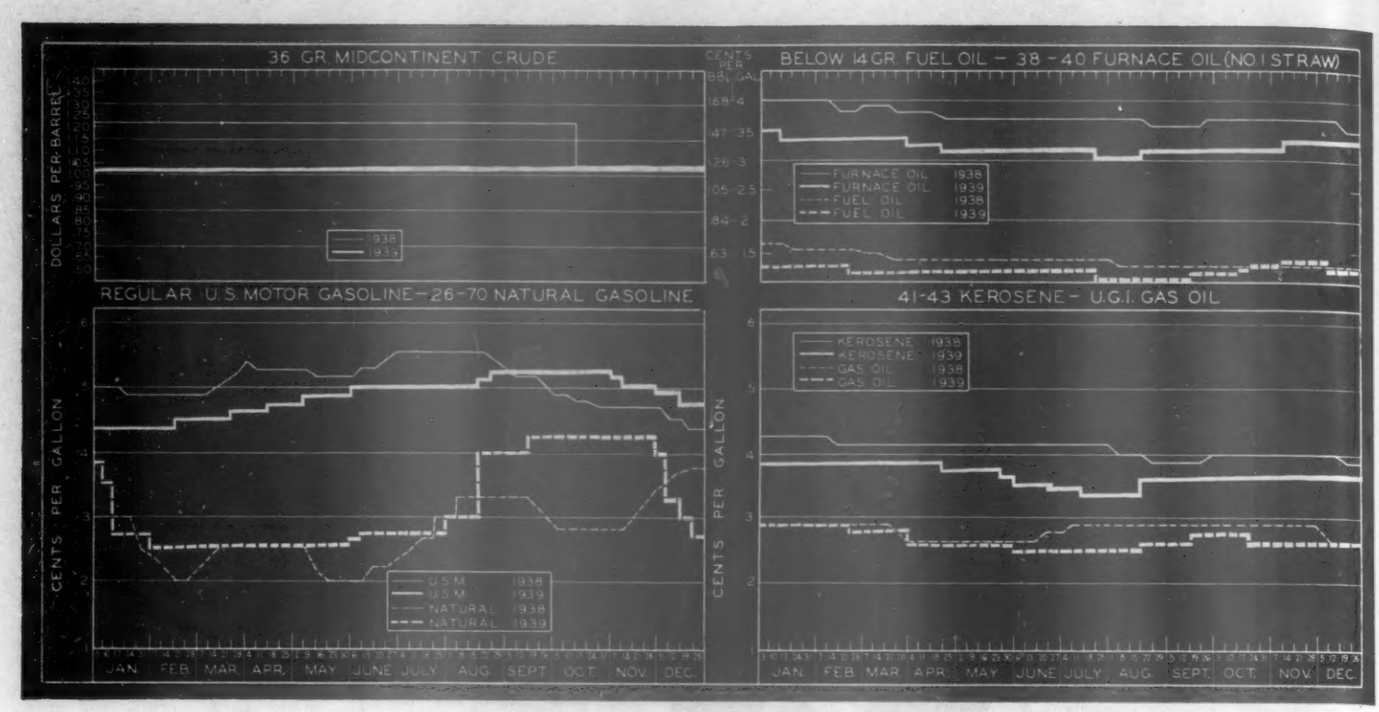
W. C. RAY, M. A. O'BRIEN, and AUSTIN F. ANDERSON, all of Fort Worth, Tex., have organized and have been granted charter for a new oil company to be known as the Ray Development Co. Offices are in the Sinclair Building in Fort Worth.

MONTY STANIFORTH, SR., independent oil operator of Wichita Falls, Tex., is reported recovering nicely in a Dallas hospital after being seriously injured early in the week. Mr. Staniforth received a badly broken arm and lacerations of the shoulder when his clothing became caught and pulled him into the chain of a rotary rig in the Muenster field of Cooke County last Wednesday.

COMMISSIONER LELAND OLDS, of New York, has been elected chairman of the Federal Power Commission, suceeding CLYDE L. SEAVEY, of California. The commission has supervision of the Natural Gas Act.

H. C. MILLER, superintendent of the Pure Oil Co. telegraph department at Chicago, recently resigned because of ill health. After 19 years' service with the Buckeye Pipe Line Co. he joined the Pure Oil organization at Columbus, Ohio, in 1917, receiving messages over the company's first wire, T. F. DOUGHERTY, Chicago, has been placed in charge of all leased wires as superintendent.

HAROLD M. McCLURE, president of Rex Oil & Gas Co., Alma, has been reelected president of the Oil and Gas Association of Michigan for 1940. Mr. McClure is also chairman of the State Advisory Board. Other officers chosen by the association are: A. J. WEIDEMAN, executive secretary; W. B. PARDOE, Daper Oil Co., secretary; W. P. CLARE, Gulf Refining Co., and GEORGE TALBOT, Talbot Oil Co., cotreasurers. All were relections. GEORGE W. MYERS, Sun Oil Co., was elected vice president to succeed C. L. MAGUIRE, Roosevelt Oil Co.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Gasoline and Naturals Sink to Lower Levels in Group 3 Refinery Market

By T. F. SMILEY

BOTH gasoline and the naturals were burrowing deeper into their holes as the new year opened for the Group 3 refinery market. Quotations on each had suffered slashes. Lubricants and wax were tight and the whole range of fuel oils was firmer.

Refiners needed no magnifying glass to see the mistakes of 1939 as the new year swung into gear, and they didn't have to hire an auditor to convince them certain practices had cut painfully into profits. Some were disposed to look hopefully toward 1940, but others pointed to the huge accumulation of excess gasoline and shook their heads.

Better Than Other Areas

Although Mid-Continent stocks of gasoline are in better relationship to demand than those of most other areas, the vital importance of curtailing runs to stills is recognized by all. Some of the smaller refiners protest that they are subjected to unjust criticism in this connection.

"It is true we are making more gasoline than our customer requirements call for," said one, "and we have to shade prices at times to keep our output moving. But what can we do about it? If we give up our crude connections, other companies will grab them. Then when the market turns upward and we need the crude once more we can whistle for it."

Under the stimulus of cold waves that swept over wide areas the heating oils displayed more life, though there was virtually no reaction to the spurt that fuels have taken on the North Atlantic seaboard. The Mid-Continent is not affected directly by soaring tanker rates that are keeping shipments from the Gulf at a low level and thus causing scarcity on the East Coast. Range oil, No. 1 prime white, and No. 2 straw were leading the light fuels in the Oklahoma market. The No. 2 straw was described as scarce.

The volume of orders for all grades of light fuels was swelling, but no important changes in quotations were reported. Most jobbers had plentiful stocks and they have been able to take care of their customers largely by drafts on these. As soon as substantial replacement becomes necessary, refiners say, higher prices are likely to be seen. This movement of kerosene was only fair.

Buyers of lubricating oils, wax, and petrolatum were pressing refiners for deliveries, and continuation of the existing buoyant market for these products was predicted. Contracts tying refiners to prices far below the spot-market level for lubricating oils expired with the old year. Taking the 150-160 D bright stock as an example, refiners entered into contracts for 1939 commonly naming about 20 cents as the maximum they could charge. They did not dream that this product would touch that level. It is selling today at 25 cents. Jobbers took all they could get under the old contracts, and a minor lull in domestic buying was expected to mark the first few weeks of the new year. Export buyers are waiting eagerly to pick up any available material, so no sagging of the market seems likely.

Weakness of Naturals Increases

Natural gasoline, which has not been able to regain its feet since it began its headlong dive in the last month of 1939, showed no signs of recovery. The naturals experienced a somewhat similar tumble in early January last year, and they did not stop till the 26-70 grade went to 2½ cents. That price level was reached in the past week. What lay ahead was a matter of conjecture. Small manufacturers offer lower and lower prices in order to move material for which they have no storage facilities. The large operators are holding much greater stocks than is usual at this season. The present troubles of the naturals originate largely in the coastwise shipping difficulties that keep motor fuel from leaving the Gulf.

Refined Oil Market Barometer

Gasoline drifted to lower levels in most areas, with little in immediate prospect calculated to improve its position. Naturals also falling, with small manufacturers compelled to dump material on a market already saturated. Heating oils firmer, stimulated by cold weather. Lubricating oils, particularly bright stocks, in urgent demand. Wax and petrolatum continue extremely active.

MID-CONTINENT. Gasoline and naturals weak. Lubricants and wax strong, heating oils firm.

EAST COAST. Heavy fuels holding their gains. Gasoline sagging. Light fuels steady.

GULF COAST. Gasoline accumulation continues and prices weak. Burning oils strong.

PENNSYLVANIA. Gasoline softer. All grades of lubricating oil vigorous. Wax strong.

CALIFORNIA. Natural gasoline slightly stronger. Fuel and furnace oil moving at former prices.

CHICAGO. Gasoline sluggish. Heating oils helped by cold weather. Heavy fuels improving.

Market Resistance Weakens in Gasoline on Eastern Coast

By H. STANLEY NORMAN

NEW YORK, Jan. 2.—Weaker Gulf Coast gasoline prices, slackened consumption and infiltration of materials from neighboring districts combined last week to overcome market resistance on the North Atlantic seaboard. Tank-car motor-fuel prices were generally a quarter of a cent lower at New York, Philadelphia, Baltimore, and Providence last week, although some sellers clung to the high of the preceding week's range. Many sellers were offering 65-octane motor fuel at New York around 6½ cents, although a considerable number continued to ask 6¾ and a few clung to 7 cents. An equally small group was offering 65-octane motor fuel, 400 or higher end point, at 6⅜ cents, indicating that the trend toward lower ground is quite definite.

Gasoline meeting 68, 70, and 70-plus octane specifications was available from a few suppliers in barges as low as 6¼ cents per gallon, although this low price was the exception. Most suppliers are asking from 6.4 to 6½ cents per gallon for 65-octane and above gasoline in barges.

The downward trend of motor-fuel prices along the North Atlantic Coast came about despite continued advances in the tanker rates applying to movement from the Gulf to points north of Cape Hatteras. Owners of clean boats were asking from 62 to 65 cents per barrel for the coastwise trip, although no charters at these figures have been reported definitely closed.

Fuel-oil prices ruled strong and demand was stimulated appreciably last week by 48 hours of freezing weather as far south as Washington, D. C.

Effective December 22, Standard Oil Co. of New Jersey advanced No. 1 and No. 2 fuel-oil prices in the State of South Carolina ¼ cent per gallon. The new tank-wagon prices at Charleston, S. C., are 8¼ cents per gallon for No. 1 oil and 6¾ cents per gallon for No. 2. At Columbia, S. C., the new higher prices are 9¼ cents for No. 1 oil and 7¾ cents for No. 2, while at Spartanburg the advance lifted quotations on No. 1 oil to 9.95 cents per gallon and No. 2 to 8.45 cents.

The advances of ⅜ to 0.4 cent per gallon on kerosene and light fuel oil throughout most of the northeastern territory have been made general by the leading suppliers. Tank-wagon price of kerosene was lifted in the State of New Jersey by Standard on December 20, 0.35 cent, making the present quotation at Atlantic City and Newark 8.1 cents per gallon.

Earlier in the month, on December 13, Standard Oil Co. of New Jersey raised tank-wagon fuel-oil prices in the State of Virginia ¼ cent per gallon. The new price at Norfolk on No. 1 fuel oil (kerosene) is 7.5 cents per gallon and No. 2 and No. 4 fuel oils are quoted at 6.5 cents per gallon. The new price at Petersburg and Richmond for No. 1 fuel is 7.75 cents per gallon and 6.75 cents for No. 2 and No. 4 at both places.

Tank-car kerosene sellers in New York are asking from 5.2 to 5.625 cents and deliveries in barges are posted at a range of from 5.1 to 5.5 cents. The tank-car price ranges from 4.7 to 5.375 cents per gallon for Nos. 2, 3, and 4 fuel oils and barge quotations are 0.1 to ⅛ cent below those figures.

The Bunker C fuel-oil price advance of 35 cents per barrel in New York Harbor appears to be reasonably well supported as is the higher marine diesel quotation of $2.10 per barrel.

Shore-plant demand for heavy industrial fuel oil is reported holding firm following the recent advances.

U. S. Motor gasoline in western Pennsylvania, actually re-forming stock, displayed further weakness and was available from some sources as low as 4¾ cents. Better grades of gasoline in the area were reported unchanged from the preceding week but an occasional sale at an eighth to a quarter off the market was reported.

Lubricating oils in western Pennsylvania continue strong. The low side of the market appears to be moving up gradually, narrowing the margin between the extremes of quotations. Advances of 2 to 4 cents per gallon were reported last week on the low side.

Neutral oil of 25 pour test, 200 viscosity, is currently quoted at a range of 30 to 34 cents, and 25 pour test, 150 viscosity neutrals, range from 28 to 30 cents per gallon. Bright stock advanced 2 to 4 cents per gallon and the range is currently 30 to 35 cents. Dark cylinder stocks are also slightly higher, ranging from 17½ for 600 steam-refined material to 25 cents for 630 flash. This range of quotations is up approximately 1 cent to 1½ cents per gallon from the previous range obtaining last week.

Western Pennsylvania refiners report that export demand for all grades of lubricating oils continues strong. The system of restricting shipments to domestic contract customers continues and the business now on the books of most plants is sufficient to engage their entire capacity for the next 30 to 60 days.

Gulf Coast Markets

HOUSTON, Tex., Jan. 2.—Gulf Coast refinery markets experienced another quiet week, with no material change in the position of any products. Continuation of accumulation of gasoline stocks at coastal refineries brought no additional quotation reductions, although prices at existing levels remained weak. The fact that the routine movement of gasoline continued to be made at refiners' quotations gave further indication that price has not been a major factor in the present picture.

Burning oils and fuel oils gave no sign of easing up, with eastern outlets continuing to take the coastal output. Although there was no particular new buying, these products remained in excellent position. There still were no new price advances in line with the recent boosts in the eastern markets.

Coastal lubricating oils continued to move steadily, although the active buying on the part of several large majors has subsided. Movement during the week was confined largely to filling of previous purchases.

A. P. I. Weekly Refinery Statistics

FIGURES FOR THE WEEK ENDED DECEMBER 30 ARE UNAVAILABLE OWING TO NEW YEAR HOLIDAY

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATE)

Week ended December 23, 1939	236,038,000 barrels
Week ended December 16, 1939	232,615,000 barrels
Week ended December 10, 1938	271,718,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

Purchasing Power

Expansion of purchasing power through repeated decreases in the retail price of essential commodities such as gasoline is contributing to the national income and the comfort and well-being of more than 20,000,000 American families, says an A.P.I. bulletin which says economists recognize that among the shortcomings of the popularized reports of the "national income" is a failure adequately to reflect increased purchasing power brought about by the great advances in efficiency of private enterprise. For example, the petroleum industry has increased the annual purchasing power of the motoring public approximately by $1,500,000,000 through lower gasoline prices. A gallon of gasoline today costs on the average (exclusive of taxes) about 7¼ cents less than it did in 1923, the Government's "normal" year.

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of January 2, 1940

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county, and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline: Tank wag.	Gasoline: Dlr. tax	Gasoline: Inc. tax	Kero. tank wag.
Chicago, Ill.	15.1	13.1	4.0	10.0
Decatur	15.1	12.1	4.0	8.5
Joliet	15.1	13.6	4.0	10.0
Peoria	15.1	12.7	4.0	10.0
Quincy	14.9	13.4	4.0	9.8
Davenport, Ia.	15.1	13.6	4.0	‡10.0
Des Moines	14.9	13.4	4.0	‡9.8
Mason City	15.3	13.8	4.0	‡10.2
Duluth, Minn.	16.9	15.4	5.0	10.8
Mankato	16.5	15.0	5.0	9.9
Minneapolis	16.5	15.0	5.0	10.4
LaCrosse, Wis.	16.5	15.0	5.0	10.4
Green Bay	16.9	15.4	5.0	10.0
Milwaukee	16.3	14.8	5.0	10.2
Detroit, Mich.	13.6	12.1	4.0	7.6
Grand Rapids	13.9	12.4	4.0	9.7
Saginaw	14.8	13.3	4.0	9.3
Evansville, Ind.	16.6	15.1	5.0	‡10.5
Indianapolis	16.8	14.3	5.0	‡10.0
South Bend	16.8	15.3	5.0	‡10.0
Fargo, N. D.	17.7	16.2	5.0	11.6
Huron, S. D.	17.0	15.5	5.0	10.9
Kans. City, Mo.*	14.4	12.9	4.0	8.0
St. Louis*	14.7	13.2	4.0	8.0
St. Joseph	14.4	12.9	4.0	7.9
Wichita, Kans.	13.3	11.1	4.0	7.9

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gal. or more, 1.5 cents off; minimum delivery 25 gal.

Stanolex Fuel Oil in Chicago

Effective December 12, 1939, f.o.b. Chicago tank-wagon prices: Standard heater oil, 1-99 gal., 9 cents; 100-149 gal., 8 cents; 150 gal. and over, 7.5 cents. Stanolex fuel oil No. 1, 1-149 gal., 8.25 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex furnace oil, 1-149 gal., 8.25 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex Grade A, 1-399 gal., 5.5 cents; 400 gal. and over, 4.5 cents. Stanolex Grade B, 1-799 gal., 5.25 cents; 800 gal. and over, 4.25 cents. Stanolex Grade C, 1-999 gal., 4.5 cents; 1,000 gal. and over, 3.5 cents.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline: Tank-wag. cons'r.	Gasoline: Dlr. vided dlr.	Gasoline: Inc. tax	Kero. tank wag.
Ohio points	16.0	15.0	5.0	*13.0

*Includes state tax of 1 cent.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline: Cons'r. tank car	Gasoline: Dlr. tank wag.	Gasoline: Inc. tax	Kero. tank wag.
Atl'tic City, N. J.	11.6	12.7	4.0	8.1
Newark	11.6	12.7	4.0	8.1
Annapolis, Md.	13.35	14.35	5.0	9.5
Baltimore	12.75	13.75	5.0	7.5
Cumberland	14.15	16.15	5.0	10.0
Wash'gton, D. C.	11.00	12.0	3.0	9.5
Danville, Va.	14.95	17.45	6.0	12.9
Norfolk	13.75	16.25	6.0	11.0
Petersburg	14.05	16.55	6.0	11.7
Richmond	14.05	16.55	6.0	10.7
Roanoke	15.25	17.75	6.0	11.0
Charles'n, W. Va.	14.55	17.05	6.0	12.6
Parkersburg	13.85	15.35	6.0	11.2
Wheeling	14.85	16.75	6.0	12.2
Charlotte, N. C.	16.90	18.40	7.0	11.8
Hickory	17.45	18.95	7.0	12.3
Mt. Airy	17.30	18.80	7.0	12.2
Raleigh	16.65	18.15	7.0	11.5
Salisbury	16.95	18.45	7.0	11.9
Charleston, S. C.	14.75	17.25	7.0	10.6
Columbia	15.60	18.10	7.0	11.5
Spartanburg	16.30	18.80	7.0	12.2

Price basis to Essolene undivided dealers: Dealer tank-wagon price less 0.5 cent per gallon. Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gal., consumer tank-wagon price at time and place of delivery; 100,000 gal. per year, consumer tank-car price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective January 16, 1939, in North Carolina the commercial consumer schedule became as follows: Single deliveries of 50 gal. or more, consumer tank-wagon price. Single deliveries of less than 50 gal., 4 cents per gallon over consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price, less .5 cent per gallon. The above policy also applies in South Carolina effective January 23, 1939.

Discounts for kerosene, 1 cent off tank-wagon price for 25 gal. or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline: Cons'r. tank wag.	Gasoline: Net dlr.	Gasoline: Inc. tax	Kero. tank wag.
Atlanta, Ga.	21.0	18.0	7.0	8.0
Augusta	20.5	17.5	7.0	10.0
Macon	19.5	16.5	7.0	10.5
Savannah	19.5	16.5	7.0	9.0
Birmingham, Ala.	21.5	18.5	8.0	9.0
Mobile	19.5	16.5	9.0	8.0
Montgomery	22.5	19.5	9.0	11.0
Jackson, Miss.	19.5	16.5	7.0	10.0
Vicksburg	19.5	16.5	7.0	9.5
Jacksonville, Fla.	20.0	17.0	8.0	8.0
Miami	20.0	17.0	8.0	7.0
Pensacola	21.5	18.5	9.0	8.5
Tampa	21.0	18.0	8.0	8.5
Lexington, Ky.	19.5	16.5	6.0	10.0
Covington	18.0	15.0	6.0	9.5
Louisville	18.5	15.5	6.0	9.0
Paducah	18.5	15.5	6.0	9.0

Price basis to tank-wagon consumers: Effective January 4, 1937; 3 cents per gallon below tank-wagon price.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent. All are included in the table.

Pennsylvania and Delaware

ATLANTIC REFINING CO.

	Gasoline: Cons'r. tank car	Gasoline: Dlr. tank wag.	Gasoline: Inc. tax	Kero. tank wag.
Philadelphia, Pa.	13.0	14.0	5.0	10.0
Pittsburgh	13.0	14.5	5.0	10.5
Allentown	13.0	14.5	5.0	10.5
Erie	13.0	14.5	5.0	10.0
Scranton*	12.5	15.0	5.0	10.5
Altoona	13.0	15.0	5.0	10.5
Dover, Del.		13.5	5.0	10.5
Wilmington		14.0	5.0	9.75

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon.

*Voluntary discount of 1 cent allowed to dealers only.

Discount on kerosene, 2 cents per gallon off tank-wagon price on tank-wagon deliveries of 25 gal. or more at one time.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline: Tank truck	Gasoline: Serv. sta.	Gasoline: Inc. tax	Kero. tank wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	10.0
Fresno, Calif.	18.5	19.5	4.0	12.5
Phoenix, Ariz.	20.0	21.0	6.0	*17.5
Reno, Nev.	20.5	21.5	5.0	13.5
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	†13.75
Spokane	21.5	22.5	6.0	†16.75
Tacoma	20.0	21.0	6.0	†13.75

*Includes 5-cent state tax. †Includes 0.25-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents. To commercial consumers: On tank-wagon price; on single deliveries of 40 gal. and over, advance quantity discount extended at time of delivery, 3 cents. Service-station schedule applies on single deliveries less than 40 gal. On kerosene in tank-car, transport-truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank wagon.

March 18, 1939, split dealer discount was canceled.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline: Cons'r. tank car	Gasoline: Dlr. tank wag.	Gasoline: Inc. tax	Kero. tank wag.
Albany	12.6	14.2	5.0	7.80
*Met. N. Y.: Manhat., Bronx Queens, Br'klyn Staten Island	12.7	13.7	5.0	8.00
Buffalo	13.1	14.5	5.0	7.70
Rochester	13.3	15.0	5.0	8.30
Syracuse	13.2	14.5	5.0	8.30
Boston	11.5	13.0	4.0	8.00
Portland, Me.	12.6	14.4	5.0	8.00
Manchester, N. H.	13.3	15.3	5.0	8.40
Burlington, Vt.	13.1	15.0	5.0	8.20
Spring'fld, Mass.	12.2	13.0	4.0	8.20
Worcester	12.1	13.5	4.0	8.20
Hartford, Conn.	11.9	13.3	4.0	7.90
New Haven	11.8	12.8	4.0	8.00
Providence, R. I.	11.5	13.3	4.0	8.00

*Does not include 2 per cent city sales tax, which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Effective February 15, 1939, the company changed its commercial consumer policy in New York and New England points for tank-wagon delivery to the following: Annual purchases 10,000 gal. and under, tank-car price plus 2 cents per gallon; annual purchases 10,000 gal. up to 50,000 gal., tank-car price plus 1.5 cents per gallon; annual purchases 50,000 to 200,000 gal., tank-car price plus 1 cent per gallon; annual purchases 200,000 gal. and over, tank-car price plus ¼ cent per gallon. Private consumers pay undivided dealer price, plus 2 cents per gallon. Private consumers receiving full compartment deliveries of at least 200 gal. receive a discount of ½ cent per gallon.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline: Tank wag.	Gasoline: Dlr.	Gasoline: Incl. tax	Kero. tank wag.
Denver, Colo.	15.5		5.0	11.5
Grand Junction	18.5		5.0	15.0
Pueblo	16.0		5.0	9.0
Casper, Wyo.	17.5		5.0	11.5
Cheyenne	15.5		5.0	13.0
Billings, Mont.	18.5		6.0	13.0
Butte	20.0		6.0	15.5
Great Falls	19.5		6.0	15.5
Helena	20.5		6.0	15.5
Salt Lake, Utah	12.5	12.5	5.0	16.0
Boise, Idaho	21.1	21.1	6.0	18.0
Twin Falls	21.1	21.1	6.0	18.0
Albu'que, N. M.	17.0	17.0	6.5	10.0
Roswell	16.0	16.0	6.5	8.0
Santa Fe	17.5	17.5	6.5	10.0

*Includes city tax of 0.5 cent. †Includes state tax of 1 mill.

Tank wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline: Cons. tank car	Gasoline: Dlr. tank wag.	Gasoline: Inc. tax	Kero. tank wag.
New Orleans, La.	15.25	17.75	8.0	†11.0
Baton Rouge	15.25	17.75	8.0	‡10.5
Alexandria	15.25	17.75	8.0	‡12.5
Lafayette	15.00	18.00	8.0	‡11.0
Lake Charles	15.25	17.75	8.0	‡12.5
Shreveport	14.00	16.50	8.0	‡11.0
Knoxville, Tenn.	18.00	20.50	8.0	13.0
Memphis	16.00	18.50	8.0	11.0
Chattanooga	17.50	20.00	8.0	12.0
Nashville	17.00	17.50	8.0	11.0
Bristol	18.25	17.75	8.0	13.0

Essolene at dealer price less 0.5 cent per gallon to undivided dealers.

†Includes 1-cent parish tax and 1-cent state tax. ‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gal. or more in one territory take posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gal. at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less 0.5 cent per gallon. Kerosene prices include 1-cent state tax.

Effective February 24, 1939, the company reestablished in New Orleans the commercial consumer policy on motor fuel effective in the rest of the state.

Effective December 12, 1938, the company revised its commercial consumer policy on motor fuel in New Orleans, as follows: Single deliveries of less than 50 gal., consumer tank car plus 2 cents per gallon 50 to 199 gal., consumer tank car plus 1 cent per gallon; 200 gal. and over, consumer tank car plus 0.5 cent per gallon.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline: Tank wag.	Gasoline: Dlr.	Gasoline: Inc. tax	Kero. tank wag.
Omaha	16.5	13.5	6.0	9.8
McCook	16.5	13.9	6.0	9.0
Norfolk	16.5	14.4	6.0	9.5
North Platte	17.8	14.9	6.0	10.0
Scottsbluff	18.5	15.5	6.0	11.4

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective January 1, 1935.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline: Tank wag.	Gasoline: Dlr	Gasoline: Inc. tax	Kero. tank wag.
Texarkana, Ark.	14.0		5.0	8.0
Fort Smith	14.5		5.0	7.5
Little Rock	17.25		7.5	8.0
Muskogee, Okla.	13.0	12.0	5.0	7.0
Oklahoma City	11.0		5.0	6.5
Tulsa	12.0	11.0	5.0	7.5

Tank wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Texas

	Gasoline: Tank wag.	Gasoline: Dlr.	Gasoline: Inc. tax	Kero. tank wag.
Dallas, Tex.	12.0	16.0	5.0	7.0
Fort Worth	15.0	19.0	5.0	8.0
Houston	14.0	18.0	5.0	8.0
San Antonio	14.0	18.0	5.0	8.0

Canada

3-Star Imperial Gasoline

IMPERIAL OIL, LTD.

	Tank wag.	Inc. tax	Kero. tank wag.
Halifax, N. S.	24.5	10.0	18.5
St. John, N. B.	24.5	10.0	18.5
Montreal, Que.	23.5	8.0	16.0
Toronto, Ont.	23.5	8.0	16.0
Hamilton, Ont.	23.5	8.0	16.0
Winnipeg, Man.	26.5	7.0	20.5
Brandon, Man.	28.0	7.0	22.9
Regina, Sask.	25.5	7.0	20.5
Saskatoon, Sask.	28.0	7.0	23.0
Edmonton, Alta.	25.9	7.0	20.9
Calgary, Alta.	23.0	7.0	18.0
Vancouver, B. C.	23.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon prices. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank wagon*
Oleum spirits	16.2
V.M.&P. naphtha	16.5
Cleaners' naphtha	15.5
Stanisol	15.5

*Prices include 3-cent Illinois tax but not 1-cent federal tax nor 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gal. lots if covered by contract.

Tank-Wagon Changes

Standard Oil Co. (Kentucky) December 15 reduced consumer tank-wagon and net dealer 1.5 cents in Mobile; December 19, advanced consumer tank-wagon and net dealer gasoline 1 cent; December 21, reduced consumer tank-wagon and net dealer gasoline 2 cents in Macon; December 11, reduced tank-wagon kerosene 1 cent in Atlanta.

Standard Oil Co. of Nebraska December 23 reduced dealer gasoline 0.5 cent in McCook and 1.4 cents in Norfolk.

Imperial Oil, Ltd., December 13 advanced tank-wagon gasoline and kerosene 0.5 cent in Montreal.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of January 2, 1940

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 octane and below	.03⅞	.04
63-66 octane	.04¼	.04¼
67-69 octane	.04⅜	.04½
70-72 octane (regular)	.04⅝	.04¾
60-62 400 grades:		
62 octane and below	.03⅞	.04
63-66 octane	.04¼	.04¼
67-69 octane	.04⅜	.04½
70-72 octane (regular)	.04⅝	.04¾
68-70 360	.04⅞	.05¼

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below	.03⅞	.04
63-66 octane	.04¼	.04¼
67-69 octane	.04⅜	.04½
70-72 octane (regular)	.04⅝	.04¾
60-62 400	.03⅞	.04

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:		
62 octane and below	.04¼	.04½
63-66 octane	.04½	.04⅝
67-69 octane	no quotations	
70-72 octane (regular)	.05	.05¼

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:		
62 octane and below		.04⅝
67-69 octane	no quotations	
70-72 octane (regular)		.05⅛

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.04	.04¼
63-66 octane	.04¼	.04½
67-69 octane	.04½	.04⅝
70-72 octane (regular)	.04⅝	.05
60-62 400 grades:		
62 octane and below	.04	.04¼
63-66 octane	.04¼	.04½
67-69 octane	.04½	.04⅝
70-72 octane (regular)	.04¾	.05
68-70 360	.05	.05¼

PENNSYLVANIA (inland refineries)—

58-60 U. S. Motor	.04¼	.04¾
65 octane	.06⅝	.06¾

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.06	.08
58-60 400, 65 oct. and higher	.07	.09

EAST COAST (domestic)—

U. S. Motor, 65 and above:		
*New York (Bayonne)	.06¼	.06⅝
Philadelphia	.06¼	.06⅝
Baltimore	.06¼	.06⅝
Charleston, S. C.	.06⅝	.07

*All grades of gasoline ⅛ to ¼ cent less for barge shipments. New York Harbor prices are for New York and New England delivery. Prices for New Jersey delivery ¼ cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
Below 60 octane	.05¼	.05⅝
65-67 octane	.05⅝	.06
68-70 octane	.06	.06¼

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.02½
Grade 18-55		.03

NORTH TEXAS—

Grade 26-70		.02¼
Grade 18-55		.02¾

CALIFORNIA—

75-85 375-390	.05⅝	.06

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70		.02⅝

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 l.b.p., 110-flash, 540-550 e.p.	.03½	.03⅝
41-43 gr., 300-320 l.b.p., 110-125 flash, 500-520 e.p.	.03⅝	.03⅝
46-48 gr., 210-230 l.b.p., 480-max., e.p.	.03⅞	.04¼

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.03⅝	.03⅞
42-44	.03¾	.04

NORTH TEXAS—

41-43	.03⅝	.03¾

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.03½	.03⅝

ARKANSAS (Ark. and N. La. del.)—

41-43		.03⅝

PENNSYLVANIA (inland refineries)—

45	.04½	.05
46	.04⅝	.05⅛
47	.04¾	.05¼

CHICAGO (Based on Group 3)—

41-43	.03⅝	.03⅞
42-44	.03¾	.04

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04½	.05¾

NEW YORK (Bayonne, N. J.)—

41-43	.052	.0525

GULF COAST (domestic)—

41-43	.04½	.04¾

*Barge price ⅛ cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03½	.03⅝
No. 1 prime white, 38-42	.03½	.03⅝
No. 1 straw, 38-40	.03⅝	.03½
No. 2 straw, 32-36	.03¼	.03⅜
No. 2 dark, 32-36	.03⅛	.03¼
No. 3 zero to 15, 28-32	.03	.03⅛
No. 3, 15 and above, 28-32	.02¾	.03

NORTH TEXAS—

No. 1 prime white, 38-42	.03½	.03⅝
No. 1 straw, 38-40	.03⅜	.03½

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	.03	.03⅛

ARKANSAS (Ark. and N. La. del.)—

No. 2, 32-36		.03⅜

CHICAGO (Based on Group 3)—

Range oil	.03½	.03¾
No. 1 prime white, 38-40	.03½	.03⅝
No. 1 straw, 38-40	.03⅜	.03½
No. 2 straw, 32-36	.03¼	.03⅜
No. 2 dark, 32-36	.03⅛	.03¼
No. 3, zero to 15, 28-32	.03⅛	.03¼
No. 3, 15 and above, 28-32	.02¾	.03

NEW YORK (Bayonne, N. J.)—

*No. 1	.05	.05¼
*No. 2	.04½	.04⅝
*No. 4	.04¼	.04½

*Barge deliveries ⅛ to ¼ cent under above tank-car price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil, under 35	.02⅝	.02¾
No. 5, low pour point, 18-22	.70	.75
No. 6, 15 and above, 8-14	.47½	.52½

NORTH TEXAS—

U.G.I. gas oil, under 35	.02⅝	.02¾
No. 5, low pour point, 18-22	.70	.75
No. 6, 15 and above, 8-14	.47½	.52½

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial	.70	.75

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02⅝	.02⅞
No. 5, low pour point, 18-22	.70	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low pour point, 10-16	.60	.70
No. 6, 15 and above, 10-16	.45	.50

PENNSYLVANIA (inland refineries)—

36-40	.03¾	.04

CALIFORNIA—

Los Angeles:		
30-40 gas oil, per bbl.	1.20	1.30
24 plus diesel, per bbl.	1.15	1.30
24 plus diesel (bunkers)	1.25	1.40
12-16 (bunkers at tidewater)	.70	.90
10-16 (cargo lots)	.75	.90
12-17 (tank cars)	.60	.80
10-17 (high sulfur)	.55	.70
San Joaquin Valley:		
10-18 (tank cars)	.55	.75
24 plus diesel, per bbl.	1.15	1.25
San Francisco:		
24 plus diesel, per bbl.	1.40	1.45
24 plus diesel (bunkers)	1.50	1.55
10-16 (bunkers)	.85	.95

GULF COAST—

No. 2 fuel		.04¼
43-47 diesel		.04
48-52 diesel		.04⅜
53-57 diesel		.04½
58 and above diesel		.04⅝
Bunker C (bulk cargoes)	.95	1.00
Bunker C (bunkers)		.90

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.05
28-30 diesel (lighterage 6¼c per bbl.)		2.10
28-30 diesel (tank cars)		.05
Bunker C (to ocean-going ships in N. Y. Harbor)		1.50
Industrial fuel (tank cars)		.04

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

190-200 D. 15-25		.28
150-160 D, 0-10		.25
150-160 D, 15-25		.24
150-160 E, 15-25		.24
100-110 D, 0-10		.24
Steam refined:		
600 dark green (untreated)		.08

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour point	.35	.38
15 pour point	.34	.37
25 pour point	.32	.35
Steam refined:		
600	.18	.18½
650	.20	.22
600 flash	.21	.23
630 flash	.24	.26

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

0-10 pour point:		
150-3		.13
180-3		.14
180-4		.13½
200-3		.14½
200-4		.14
250-3		.16
250-4		.15½
280-3		.17
280-4		.16½
300-3½		.17½
400-3½		.18½
100-2½ paraffin oil		.07½
15-25 pour point:		
200-3		.14
200-4		.13½
250-3		.15½
250-4		.15
280-3		.16½
280-4		.16

GULF COAST—

Pale oils:		
200-3	.07¼	.07½
300-3	.07¾	.08
500-3½	.08½	.09
750-3½	.09	.09½
1,200-3½	.09¾	.10
2,000-4		.10¼
Red oils:		
200-5-6	.07	.07¼
300-5-6	.07½	.07¾
500-5-6	.08¼	.08¾
750	.08¾	.09¼
1,200-5-6	.09¾	.09¾

CALIFORNIA (moving to dom. market)—

Pale oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° F., 3 color, 400-405 flash:		
Zero pour point	.33	.35
10 pour point	.32	.34
15 pour point	.31	.33
25 pour point	.28	.30
200 vis. at 70° F., 3 color:		
Zero pour point	.35	.38
10 pour point	.34	.37
15 pour point	.33	.36
25 pour point	.31	.34

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (A.m.p.) w.c. scale	.0675	.06875

PENNSYLVANIA (inland refineries)—

122-124 (A.m.p.) w.c. scale	.0675	.0700
124-126 (A.m.p.) w.c. scale	.0675	.0700

NEW YORK—

Wax in bags fully refined:		
123-125 (A.m.p.) wax	.0650	.0675
125-127 (A.m.p.) wax	.0675	.0700
128-130 (A.m.p.) wax	.0700	.0725
130-132 (A.m.p.) wax	.0725	.0750
133-135 (A.m.p.) wax	.0750	.0760
135-137 (A.m.p.) wax	.0760	.0775
Crude scale:		
124-126 (A.m.p.) w.s.		.0700
124-126 (A.m.p.) y.s.		.0700
Petrolatum in barrels, carload lots:		
Dark green		.03¼
Amber		.03⅜
Extra amber		.04
Lily white		.06½
Snow white		.07⅝
Cream		.05½

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.05	.05¼
60-62 400	.05½	.06
65 octane	.05¾	.06⅛
68 octane	.06	.06¼
70 octane	.06⅛	.06⅜

LOS ANGELES—

U. S. Motor grades:		
60-65 octane	.05½	.05¾
65-69 octane	.05¾	.06¼
Above 69 octane	.06¼	.06½

KEROSENE

GULF COAST—

41-43 prime white		.05¼
41-43 water white		.05¼

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.o.s.) in bbls.—

Cylinder stocks:		
600 S.R. unfiltered	.25	.26½
650 S.R. unfiltered	.27	.28½
600 flash, S.R.	.28	.30½
630 flash, S.R.	.30	.34
Bright stock:		
8 color	.40	.42

NEUTRAL OIL

200-3 color	.38	.43
150-3 color	.37	.40

PARAFFIN WAX

NEW YORK (prices per pound)—

123-125 A.m.p.		.0700
125-127 A.m.p.		.0750
128-130 A.m.p.		.0775
133-135 A.m.p.		.0850
135-137 A.m.p.		.0900
Crude scale:		
122-124 w.s.		.0650
124-126 w.s.		.0700
122-124 y.s.		.0675
124-126 y.s.		.0700

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

East Texas (Oct. 11, 1938)* $1.10
Sinclair Prairie Oil Marketing Co. October 2, 1939. DeSoto Pipe Line October 2, 1939. Cities Service Co. October 5, 1939. Shell Oil, Inc., October 5, 1939.
Van, Tex. (Oct. 11, 1938)* $0.93
Talco, Tex. (Oct. 2, 1939)* ..... .65
Rodessa, Tex. .....
See North Louisiana gravity schedule
Cass and Panola counties, Texas
See note below
Altus and Tipton† ..... See note below
Cayuga, Tex. (Oct. 2, 1939) $0.78
Clay Creek, Tex. ..... .85

*Humble Oil & Refining Co. †Gulf Refining Co. Pure Oil Co.'s Van price, 93 cents, effective Oct. 13, 1938.

Cass and Panola counties, Texas, effective October 12, 1938, by Magnolia Petroleum Co., same as North Louisiana prices in Column 5 in gravity schedule.

Altus and Tipton, Oklahoma, starting at below 25° at 71 cents, 2-cent spread to 40° and above at $1.03. Cayuga posted by Pan American Pipe Line Co. Clay Creek by Sun Oil Co.

West Texas

See gravity table.
Fisher County, Texas (Apr. 1, 1939)
See note below
Pecos County (Oct. 11, 1938)* $0.78
Pecos shallow (Oct. 11, 1938)† ..... .65

*Shell Oil Co., Gulf Pipe Line Co. and Humble Oil & Refining Co. †Shell Oil Co.

Fisher County, Texas, by Shell Oil Co., Inc., below 25°, 68 cents; 25°, 70 cents, with 2-cent spread to 40° and over at $1.

North Louisiana and Arkansas

Shreveport, La. (Sept. 7, 1939) .. $1.05
See note below
Smackover, Ark. (Oct. 5, 1938)* .... .73
Buckner, Magnolia, and Village, Ark. (Oct. 5, 1938)* ..... See note below
Schuler, Jones sand (Sept. 13, 1939) .79
Schuler, Reynolds sand (Sept. 13, 1939) ..... .91
Tullos and Urania $0.89
Cotton Valley, La. (distillate) (Dec. 23, 1938)* 1.20
Cotton Valley (Holloway sand) Dec. 16, 1939) 1.00
Lisbon, La. (Apr. 29, 1939) .....
See note below
Atlanta, Ark. (Sept. 13, 1939) .. .93
Magnolia, Ark. (Sept. 13, 1939) .. .93
University, La. (Sept. 11, 1939) .....
See note below

*Smackover posted by Standard Oil Co. of Louisiana, Oct. 5, 1938; by Magnolia Petroleum Co., Oct. 12; by Gulf Refining Co., Oct. 13; McMillan Refining Co. and Cross Refining Co. met price. Tullos and Urania posted by Hunt Oil Co. and Arkansas Fuel Oil Co.

The above Schuler, Atlanta, and Magnolia, Arkansas, flat prices posted by Lion Oil Refining Co. Shreveport flat prices posted by Caddo Crude Oil Purchasing Co. and Atlas Oil Corp.

Buckner, Magnolia, and Village, Arkansas prices effective Sept. 13, 1939, by Standard Oil Co. of Louisiana, start at below 25° at 63 cents, with 2 cents added for each degree up to 40 and over at 95 cents.

Effective Sept. 7, 1939, Standard Oil Co. of Louisiana posted gravity prices in Shreveport field beginning at below 25°, 73 cents; 25-25.9°, 75 cents, with 2 cents added for each degree up to 40 and over at $1.05.

In the Lisbon, Louisiana, field, effective Sept. 14, 1939, Gulf Refining Co. and Caddo Crude Oil Purchasing Co. posted 27-27.9°, 66 cents, with 2 cents added for each degree up to 35 and over at 82 cents.

In the Baton Rouge (University) field, Louisiana, effective Sept. 11, 1939, Standard Oil Co. of Louisiana posted below 20° 79 cents, with 3 cents added for each degree upward to 26-26.9° at $1, and then 2 cents added for each degree up to 40 and over at $1.28.

Southwest Texas

Salt Creek, Darst Creek, Hilbig, Carroll, Clark and Zoboroski (Oct. 11, 1938)* $0.96
Pettus (Oct. 11, 1938)* 1.29
Flour Bluff (Dec. 3, 1938)* 1.23
Jim Wells County (Oct. 2, 1939)* . 1.23
Darst Creek (Oct. 12, 1938)† ..... .96
Darst Creek and Bruner (Oct. 13, 1938)‡ ..... .96
Luling (Oct. 12, 1938)† ..... .87
Lytton Springs (Oct. 12, 1938)† ..... .90
Mirando (Oct. 12, 1938)† .....
Government Wells (Oct. 13, 1938) .....
See note below

*Humble Oil & Refining Co. †Magnolia Petroleum Co. Pettus price adopted by Atlantic Crude Oil Purchasing Co. ‡Gulf Refining Co.

Government Wells posted by Sun Oil Co. starts at 20° at 77 cents, 3-cent spread to 24°-24.9° at 89 cents.

Gulf Coast

Sea Breeze, Willow Slough, and LaBelle, Tex. (Sept. 14, 1939)*** $1.10
Conroe, Tex. (Oct. 11, 1938)* 1.27
Black Bayou and White Castle, La. (Oct. 11, 1938)† ..... See note below
Gibson, La. (Oct. 11, 1938)† $1.04
Garden Island, La. (Oct. 12, 1938)‡ .. 1.24
Lafitte, La. (Oct. 12, 1938)‡ 1.04
Cleveland, Tex. (Oct. 12, 1938)¶ 1.14
Schwab, Polk County (Feb. 20, 1939) 1.00
Hardin, Tex. (Sept. 14, 1939)* $1.10
Tepetate, La. (Oct. 11, 1938)§ 1.03
Villa Platte, La. (Oct. 11, 1938)§ 1.03
Abbeville, La. (Jan. 1, 1939)§ .....
See note below
Bosco, La. (Dec. 3, 1938)‖ $0.93
Creole, La. (Oct. 13, 1938)‖ ..... .96
Gueydan, Sweet Lake, and Louise, La. (Oct. 13, 1938)‖ ..... See note below
Vinton, Edgerly, Starks, Hackberry, Timbalier Bay, Quarantine Bay, and Grand Bay, La. (Oct. 2, 1939)**
Long Lake, Tex. (Oct. 13, 1938)** .. $1.08
Segno and Wing (Oct. 2, 1939)**
See note below
Livington (Oct. 11, 1938)† $1.10
Gibson, La. (Oct. 11, 1938)† 1.04
Evangeline, La. (July 7, 1939) $0.98

*Humble Oil & Refining Co. †Shell Oil Co., Inc. ‡Texas Co. §Continental Oil Co. ‖Pure Oil Co. ¶Magnolia Petroleum Co. **Gulf Refining Co. ***Sun Oil Co. Hardin prices by Humble and Sun companies.

Black Bayou, etc., starts at below 20° at 79 cents; 20°-20.9°, 81 cents; 21°-21.9°, 83 cents; then a 3-cent spread to 26°-26.9°, 98 cents; then a 2-cent spread to 40° and over at $1.14. Abbeville starts at below 36°, 92 cents, 2-cent spread to 40° and over at $1.02. Gueydan, etc., starts below 20°, 79 cents, 3-cent spread to 26°-26.9° at $1, and 2-cent spread to 40° and over at $1.28. Segno and Wing take Gulf Refining Co.'s Gulf Coast prices. Vinton, Edgerly, etc., schedule starts at below 20°, 86 cents, 2-cent spread to 34° and above at $1.16. Schwab posted by Shell Oil Co., Inc. Evangeline, La., posted by Standard Oil Co. of Louisiana.

Hackberry, East and West, effective October 2, 1939, by Stanolind Oil & Gas Co. Below 20 gravity 86 cents, 2 cents added for each degree up to 34° and over at $1.16.

In the Bunkie and Eola pools in Louisiana, effective October 23, 1939, by

Crude Prices by Gravities

	Oklahoma and Kansas 1	Oklahoma and Kansas 2	Oklahoma and Kansas 3	North and Central Texas 4	Louisiana and Arkansas 5	East Central Texas 6	Gray County, Texas 7	Carson and Hutchinson Counties Texas 8	West Texas, and Lea County, N. M. 9	Raccoon, Saturna, and Tomball, Texas 10	Gulf Coast 11	Anahuac, Dickinson, Texas 12	Refugio, Texas 13	Mirando-Duval, Beaumont-West Beaumont, Texas 14	Golden Meadows, Louisiana 15	Lockport, Iowa, Cameron Meadows, Louisiana 16	Bunkie and Eola, Louisiana 17	Artesia, Jackson, Maljamar, N. M. 18
Below 18	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	$.74	....	....
18-18.9	....	....	....	....	....	....	....	....	$.53	....	....	....	....	....	....	.76	....	....
19-19.9	....	....	....	....	....	....	....	....	.53	....	$.86	$.81	$.91	$.86	....	.78	....	....
20-20.9	$.70	....	$.60	....	....	....	....	....	.55	....	.88	.83	.93	.88	....	.80	....	....
21-21.9	.72	....	.63	....	....	....	....	....	.57	....	.90	.85	.95	.90	....	.82	....	....
22-22.9	.74	....	.66	....	....	....	....	....	.59	$.95	.92	.87	.97	.92	....	.85	....	....
23-23.9	.76	....	.69	....	....	$.78	....	....	.61	.97	.94	.89	.99	.94	....	.88	....	....
24-24.9	.78	....	.72	$.71	$.73	.80	....	....	.63	.99	.96	.91	1.01	.96	$.90	.91	....	....
Below 25	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	$.83	....
25-25.9	.80	$.58	.75	.73	.75	.82	....	....	.65	1.01	.98	.93	1.03	.98	.90	.94	.85	....
26-26.9	.82	.63	.78	.75	.77	.84	....	....	.67	1.03	1.00	.95	1.05	1.00	.90	.97	.87	....
27-27.9	.84	.68	.81	.77	.79	.86	....	....	.69	1.05	1.02	.97	1.07	1.02	.90	.99	.89	....
28-28.9	.86	.73	.84	.79	.81	.88	$.72	$.67	.71	1.07	1.04	.99	1.09	1.04	.90	1.01	.91	$.61
29-29.9	.88	.78	.87	.81	.83	.90	.74	.69	.73	1.09	1.06	1.01	1.11	1.06	.90	1.03	.93	.63
30-30.9	.90	.82	.90	.83	.85	.92	.76	.71	.75	1.11	1.08	1.03	1.13	1.08	.90	1.05	.95	.65
31-31.9	.92	.86	.92	.85	.87	.94	.78	.73	.77	1.13	1.10	1.05	1.15	1.10	.92	1.07	.97	.67
32-32.9	.94	.90	.94	.87	.89	.96	.80	.75	.79	1.15	1.12	1.07	1.17	1.12	.94	1.09	.99	.69
33-33.9	.96	.96	.96	.89	.91	.98	.82	.77	.81	1.17	1.14	1.09	1.19	1.14	.96	1.11	1.01	.71
34-34.9	.98	.98	.98	.91	.93	1.00	.84	.79	.83	1.19	1.16	1.11	1.21	1.16	.98	1.13	1.03	.73
35-35.9	1.00	1.00	1.00	.93	.95	1.02	.86	.81	.85	1.21	1.18	1.13	1.23	1.18	1.00	....	1.05	.75
36-36.9	1.02	1.02	1.02	.95	.97	1.04	.88	.83	.87	1.23	1.20	1.15	1.25	1.20	1.02	....	1.07	.77
37-37.9	1.04	1.04	1.04	.97	.99	1.06	.90	.85	.89	1.25	1.22	1.17	1.27	1.22	1.04	....	1.09	.79
38-38.9	1.06	1.06	1.06	.99	1.01	1.08	.92	.87	.91	1.27	1.24	1.19	1.29	1.24	1.06	....	1.11	.81
39-39.9	1.08	1.08	1.08	1.01	1.03	1.10	.94	.89	.93	1.29	1.26	1.21	1.31	1.26	1.08	....	1.13	.83
40 and over	1.10	1.10	1.10	1.03	1.05	1.12	.96	.91	.95	1.31	1.28	1.23	1.33	1.28	1.10	....	1.15	.85

Column 1—Effective October 17, 1938, by Standard Oil Co. of Indiana. By Gulf Refining Co., October 13, 1938. Carter Oil Co. schedule and prices same from 30° upward, but on lower gravities pays below 21° 60 cents, with 3 cents added for each degree up to and including 29-29.9°, effective October 13, 1938. Gulf Oil Corp. starts at below 25° 78 cents, October 13, 1938. Texas Co. schedule starts at 28-28.9° at 86 cents. Pure Oil Co. same as Standard of Indiana's schedule, effective October 14, 1938.

Column 2—Sinclair Prairie Oil Marketing Co. February 16, 1939.

Column 3—Magnolia Petroleum Co. effective October 12, 1938; Shell Petroleum Corp., October 22, 1938; Shell Oil Co., Inc., April 1, 1939.

Column 4—Effective December 3, 1938, by Humble Oil & Refining Co. in Central Texas. By Magnolia Petroleum Co. in East Central and in North and Central Texas, excepting that it starts at below 29° at 79 cents, effective December 3, 1938. Texas Co. in North and Central Texas, same as Magnolia's but effective October 12, 1938. Gulf Refining Co. same as Magnolia's, effective October 13, 1938. Sinclair Prairie Oil Marketing Co. same as Magnolia's, effective October 5, 1939. Stanolind Oil Purchasing Co., in Cooke and Montague counties, schedule starts at below 21°, 60 cents, with a 2-cent spread upward to 40° and over at $1, effective October 17, 1938.

Column 5—Standard Oil Co. of Louisiana, effective October 5, 1938. Met by Gulf Refining Co. October 13; met by Texas Co. October 12.

Column 6—Humble Oil & Refining Co., October 11, 1938.

Column 7—Humble Oil & Refining Co., Effective December 3, 1938. Sinclair Prairie Oil Marketing Co., October 11, 1938. Texas Co. quotes "Panhandle sweet crude," beginning with 34-34.9°, at 84 cents, with 2-cent spread to 40° and over at 96 cents, and "Panhandle sour crude," 79 cents for 34-34.9°, with a top of 91 cents for 40° and over, effective October 12. Magnolia Petroleum Co. met Humble prices throughout, effective December 3. Gulf Refining Co. quotes "Panhandle sweet crude" at below 29°, 72 cents with a 2-cent spread, and a top price of 96 cents for 40° and above, and "Panhandle sour crude" below 29°, 67 cents, with a top of 91 cents for 40° and above effective October 13. Phillips Petroleum Co. schedule for sweet crude in Gray, Carson, and Hutchinson counties, starts at below 29°, 72 cents, with a spread of 2 cents up to 96 cents for 40° and over, effective February 7, 1939.

Column 8—Humble Oil & Refining Co., effective December 3, 1938. Sinclair Prairie Oil Marketing Co., October 11, 1938. Texas Co. quotes "Panhandle sweet crude" at 34-34.9°, 84 cents, with a top of 96 cents for 40 gravity, and "Panhandle sour crude" at 34-34.9°, 79 cents, with a top of 91 cents for 40° and over, effective October 12. Gulf Refining Co. quotes "Panhandle sweet crude" at below 29°, 72 cents, with a top of 96 cents for 40° and over and "Panhandle sour crude" at below 29°, 67 cents, with a top of 91 cents for 40° and above, effective October 13. Phillips Petroleum Co. schedule for sour crude in Carson, Moore, and Hutchinson counties, starts at below 29° at 67 cents, with a spread of 2 cents up to 91 cents for 40° and over, effective February 7, 1939.

Column 9—Humble Oil & Refining Co., effective October 11, 1938. Texas Co. schedule starts at below 26°, 65 cents, and ends at 36° and over at 87 cents, effective October 12. Gulf Refining Co. starts at below 26° at 65 cents and ends at 40° and over at 95 cents, effective October 13. Magnolia Petroleum Co. schedule starts below 25°, 63 cents, and ends at 40° and above at 95 cents, effective October 12. Sinclair Prairie Oil Marketing Co. schedule same as that of Magnolia, effective October 11, but revised on March 24, 1939, to stop at 36° and over at 87 cents. Stanolind Oil Purchasing Co. schedule same as that of Humble, effective October 11. Stanolind Oil & Gas Co. (Winkler County) starts at below 26°, 65 cents, with a 2-cent spread, and a top of 95 cents for 40° and above, effective October 11, 1938. Effective September 1, 1939, Shell Oil Co., Inc., posted Yoakum County crude, starting at below 20°, 53 cents, with 2 cents added for each degree up to 36° and over at 87 cents.

Column 10—Humble Oil & Refining Co., effective October 11, 1938. Magnolia Petroleum Co., in Tomball, effective October 12.

Column 11—Effective October 2, 1939, by Humble Oil & Refining Co. in Texas Coast. By Sinclair Prairie Oil Marketing Co. in Texas Coast, October 3, 1939. By Texas Co. at $1.16 in Texas and Louisiana Coast, October 2, 1939, schedule stopping at 34° and over. By Sun Oil Co. in Texas and Louisiana Coast, October 2, 1939. By Gulf Refining Co. in Louisiana October 2, 1939, excepting that schedule stops at $1.16 for 34° and above. By Gulf Refining Co. in Texas, effective November 1, 1939.

Column 12—Effective by Humble Oil & Refining Co. October 2, 1939. By Sun Oil Co. in Anahuac, October 2, 1939. By Gulf Refining Co. in Anahuac, October 2, 1939. On November 1, 1939, Gulf Refining Co. applied these prices to Anahuac, Hull (new), Pierce Junction, Orange, Thompson (deep).

Column 13—Effective October 2, 1939, by Humble Oil Refining Co. and Continental Oil Co. By Texas Co. up to 28° and over at $1.09 October 2, 1939. Atlantic adopted Humble price schedule November 7, 1939, in Refugio and applied it also to Greta.

Column 14—Effective October 2 by Humble Oil & Refining Co. By Sun Oil Co. in Mirando alone, stopping at 24-24.9° at 96 cents. By Stanolind Oil & Gas Co. in West Beaumont, alone, October 2, 1939. Gulf Refining Co. in West Beaumont, October 2, 1939. By Magnolia Petroleum Co. in Beaumont, October 2, 1939. By Texas Co. in Duval and Mirando, stopping at 28-28.9° at $1.09. Continental Oil Co. in Mirando and Duval, October 2, 1939.

Column 15—Effective October 2, 1939, by Texas Co.

Column 16—Magnolia Petroleum Co., effective October 12, 1938.

Column 17—Standard Oil Co. of Louisiana, effective October 23, 1939.

Column 18—Continental Oil Co., effective October 11, 1938.

Standard Oil Co. of Louisiana, below 25° 83 cents, 2 cents added for each degree up to 40° and over at $1.15.

Iowa, La., effective October 11, 1938, by Shell Petroleum Corp. and on April 1, 1939, by Shell Oil Co., Inc.: Below 18°, 75 cents; 18-18.9, 77 cents; 2-cent to 21-21.9 at 83 cents; then a 3-cent spread to 26-26.9 at 98 cents; then a 2-cent spread to 34° and above at $1.14.

Middle Western States

OHIO OIL CO.
(Effective June 8, 1939)

Illinois old fields	$0.95
Illinois basin	1.05
Princeton, Ind.	.95
Western Kentucky (June 9, 1939)†	.90
Birk City, Ky. (June 9, 1939)¶	.90
Corydon, Ky. (June 9, 1939)¶	.90
Greendale, Porter, Crystal and Wise, Mich. (Oct. 9, 1939)*‡	1.02
Buckeye, Bentley, Edenville, Beaverton, Mich. (Oct. 9, 1939)*	1.00
Freeman-Redding, Mich. (Oct. 9, 1939)‡	.97
Arenac, Mich. (Oct. 9, 1939)*	.82
West Branch, Mich. (Nov. 1, 1939)*	.85
Allegan-Kent (Oct. 10, 1939)	1.03
Bloomingdale and Columba, Mich.¶	1.03
Muskegon	1.00
Sherman and Freeman, Mich. (Oct. 9, 1939)‡	.97
Eastern Kentucky:	
Big Sandy River (June 9, 1939)†	$1.02
Kentucky River (June 9, 1939)†	1.10

*Simrall Corp. †Ashland Refining Co. ‡Pure Transportation Co.. §Imperial Refining Co. ¶Sohio Oil Co. Bloomingdale posted by Tri-Lakes Corp. Kent County by Naph-Sol Refining Co. Effective Sept. 13, 1939, Sohio Corp. posted 95 cents per barrel in Salem, Ill., pool, and on Oct. 10, 1939, posted 95 cents per barrel in the Griffin field in Gibson County, Indiana, and Wabash County, Illinois, for crude produced from sand and 90 cents for crude produced from limestone.

Rocky Mountain States

Dry Creek, Wyo. (Oct. 11, 1938)*	$0.92
Elk Basin, Wyo. (Oct. 11, 1938)*†	.90
Grass Creek, light, Wyo. (Oct. 11, 1938)*†	.90
Grass Creek, heavy (Oct. 11, 1938)†	.40
Lance Creek, Wyo. (Oct. 11, 1938)*	.77
Rock Creek, Wyo. (Oct. 11, 1938)*	1.00
Iles, light, Colo. (Oct. 11, 1938)†	.98
Iles, heavy, Colo. (Oct. 11, 1938)†	.92
Dutton Creek, Wyo. (Oct. 11, 1938)†	See note below
Frannie, light, Wyo. (Oct. 11, 1938)†	$0.55
Frannie, heavy, Wyo. (Oct. 11, 1938)†	.42
Hamilton dome, Wyo. (Oct. 11, 1938)†	.35
Midway, Wyo. (Oct. 11, 1938)†	See note below
Salt Creek Tensleep Crude, Wyo. (Oct. 11, 1938)†	$0.646
Salt Creek (Oct. 11, 1938)	See note below
Canon City, Colo. (Oct. 11, 1938)‡	$0.90
Florence, Colo. (Oct. 11, 1938)‡	.90
Cat Creek, Mont. (Oct. 11, 1938)‡	1.10
Big Muddy, Wyo. (Oct. 11, 1938)‡	.98
Lance Creek, Wyo. (Oct. 11, 1938)‡	.77
Lea County, New Mexico	See West Texas gravity schedule‡
Artesia, Jackson and Maljamar	See gravity table‡
Fort Collins and Wellington, Colo.	See note below
Eddy County, New Mexico (Oct. 11, 1938)§	$0.77

*Ohio Oil Co. †Stanolind Oil & Gas Co. ‡Continental Oil Co. §Sinclair Prairie Oil Marketing Co.

Dutton Creek and Salt Creek Tensleep crudes start at below 29°, 86 cents, 2 cents spread up to 40° and over at $1.10. Salt Creek crude, excepting Tensleep, takes Standard Oil Co. of Indiana's Oklahoma-Kansas prices. Stanolind Oil & Gas Co., effective Oct. 11, discontinued posting prices in Greybull-Torchlight, Wyoming, and Hogback and Hospah, New Mexico, in Fort Collins and Wellington, Colorado, effective Oct. 11, 1938, by Continental Oil Co. 28-28.9°, 81 cents, with 2 cents added for each degree up to 40° and over at $1.05.

Eastern States

SOUTH PENN OIL CO.
(Effective Jan. 1, 1940)

Pennsylvania Grade oil in National Transit lines (Bradford field)	$2.75
Pennsylvania Grade oil in Southwest Pennsylvania lines	2.40
Pennsylvania Grade oil in Eureka Pipe Line lines	2.34
Corning grade oil in Buckeye Pipe Line Co. line (Nov. 4, 1939)	1.12

TIDE WATER ASSOCIATED OIL CO. and NEW YORK TRANSIT CO.
(Effective Jan. 1, 1940)

Bradford, Pa.	$2.75
Allegany, N. Y.	2.75

PENNZOIL CO.
(Effective Jan. 1, 1940)

Group A	$2.68
Group B	2.67
Group C	2.66
Group D	2.65
Group E	2.63

PURE OIL CO.
(Effective Jan. 1, 1940)

West Virginia	$2.44

QUAKER STATE OIL REFINING CORP.
(Effective Dec. 1, 1939)

Southern Ohio (Pa. Grade)	$2.30

Canada

ONTARIO
(Nov. 6, 1939, by Imperial Oil., Ltd.)

Petrolia	$2.10
Oil Springs	2.07
Both well	2.10

TURNER VALLEY
(Jan. 5, 1938, by Imperial Oil, Ltd.)

Clear naphtha and discolored naphtha, 65° and higher	$2.14
Discolored naphtha and crude oil, 40°-40.9°	1.14
Increasing 2 cents for each degree gravity with top price for 64°-64.9°	1.62

These prices f.o.b. producers' field tankage.

Crude-Oil Price Changes

Pennsylvania Grade crude oil was given a 25-cent advance in prices by South Penn Oil Co., Tide Water Associated Oil Co. and other purchasers, effective January 1. The new prices are: Bradford and Allegany, $2.75; Southwest Pennsylvania, $2.40; West Virginia, $2.34 and Southeast Ohio, $2.30, the last named posted by Quaker State Oil Refining Co.

Illinois Pays Below Benoist Yield Large Production

CENTRALIA, Ill., Jan. 2.—The holiday season and winter weather took their toll in Illinois last week with a drop of 60 in the completions for the week and only 49 new tests reported. Fifty of the completed tests were oil wells, and the initials averaged high, totaling 23,363 bbl. for an average of 466 bbl. per well. New work was concentrated in the development of the Salem, Louden, Dundas, and Centralia townsite pools and in wildcatting in White County. Four Devonian tests were started in Centralia.

Carter Oil Co. led the parade in the Louden field with seven completions for a total initial of 3,542 bbl., Magnolia Petroleum Co. completed one for 108 bbl., and an 80-bbl. well was completed by an independent. In the St. James pool Ohio Oil Co. completed three wells for a total initial of 700 bbl., and Texas Co. and an independent contributed one each to bring the total to five wells and an initial of 837 bbl. Pure Oil Co. had two hits and two misses in the Dundas area in Richland County, but the initial on the two wells totaled 2,174 bbl. In Clay County Pure Oil Co. completed a well making 196 bbl., and the same company marked up a 900-bbl. well in Wayne County. Independents in Wayne County completed one dry hole and four wells for a total initial of 1,280 bbl. The wells were in the Barnhill pool. Magnolia Petroleum Co. and the Skelly Oil Co. each completed a well in Wabash County, and Magnolia also brought in Washington County's lone producer. An independent added a 235-bbl. well in the Aux Vases to the Mill Shoals field in White County.

The Salem field becomes more complicated each week, with five pay zones being developed and many of the wells producing from two horizons. The sand wells dominated the week, eight tests being completed in either the Benoist or Aux Vases or both for a total initial of 7,842 bbl.; the McClosky lime showed five completions for an initial of 1,055 bbl., the Devonian had a single completion for 2,224 bbl., and the Salem lime had three completions for 1,599 bbl. Texas Co. completed 11 wells in the pool, Magnolia completed three, and independent operators contributed three more.

In the Centralia townsite pool, the first Devonian well made 782 bbl., while up in the Tonti pool an Aux Vases well was completed for 150 bbl. The Fairman pool in Marion and Clinton counties had three completions for the week by independents with total initial of 157 bbl. Completion and wildcat first reports follow:

Completed Wells

In Fayette County Bialock & Walter's No. 1 Logue, SE SE SE Section 13-7n-2e, Cypress sand 1,549 ft., shot 15 qt., pumped 80 bbl. In Township 8n-3e Carter Oil Co. completed the following tests: No. 1 Taylor-Reed, SW SE SW Section 12, Cypress sand 1,501-18 ft., shot 20 qt., swabbed 254 bbl.; No. 3 Presbyterian Church, NW SE NE Section 21, total depth 1,630 ft., completed in two zones for 36 bbl.; No. 1 Rhodes Williams, SW SE SE Section 22, completed in three zones at total depth 1,515 ft. for 606 bbl.; No. 9 Mabel Miller, SW SW SW Section 28, Cypress, Paint Creek and Bethel for 720 bbl.; No. 4 Kay Birdie, SE NW SE Section 29, total depth 1,542 ft., three-zone producer, 720 bbl.; No. 4 S. R. Myers, NE SW SE Section 29, three zones, total depth 1,568 ft., flowed 990 bbl. Carter Oil Co. also completed No. 3 Darrel Durbin, NE NW NE Section 8-7n-3e, total depth 1,587 ft., swabbed 216 bbl. Magnolia Petroleum Co.'s No. 2 P. M. Watson, SE SE SE Section 33-8n-3e, total depth 1,587 ft., pumped 108 bbl. May Pray's No. 1 Seibert, NW NW NW Section 10-7n-3e, topped the Devonian at 3,157 ft. and was abandoned as dry at 3,262 ft.

In the St. James pool Texas Co.'s No. 6 M. V. Griffith, SW NW SE Section 25-6n-2e, total depth 1,607 ft., pumped 49 bbl. George Weinschel's No. 1 Black, NE SW NE Section 25-6n-2e, total depth 1,573 ft., pumped 88 bbl. of fluid and 2 per cent water. Ohio Oil Co. completed the following in Section 36-6n-2e: No. 6 J. Swarm, NW SE NE, total depth 1,610 ft., pumped 205 bbl. from Cypress sand; No. 7 J. Swarm, SW SE NE, total depth 1,611 ft., pumped 242 bbl. from Cypress sand; No. 2 C. T. Williams, NE NW SE, total depth 1,612 ft., pumped 253 bbl. from Cypress sand.

In Effingham County Kingwood Oil Co.'s No. 1 Reichheim, NE NE NE Section 21-6n-6e, total depth 2,956 ft., plugged back to 2,895 ft., shot with 10 qt., treated with 500 gal. and retreated with 4,000 gal. of acid, swabbed water and was abandoned.

In the Dundas area of Richland County Pure Oil Co. completed the following in Township 5n-10e: No. 2 G. F. Glossbrenner, C E½ SW NW Section 31, Fredonia pay 2,822-39 ft. in streaks, flowed 797 bbl.; No. 1 F. S. Bartlett, SW NE SE Section 29, dry and abandoned at 3,117 ft.; No. 1 M. Heaf, C E½ SW NE Section 30, dry and abandoned at 3,210 ft. The other completion in the area was the Pure Oil Co.'s No. 3 J. N. Wachtel, SW SW NW Section 6-4n-10e, Fredonia pay 2,846-60 ft., flowed 1,377 bbl.

In the Fairman pool in Marion and Clinton counties, Cascade Refining Co.'s No. 3 C. A. Adams, NW SE NE Section 13-3n-1w, Clinton County, Benoist 1,433-36 ft., pumped 75 bbl. Misner and Baldwin's No. 1 Parker, SW NW NW Section 17-3n-1e, Marion County, Benoist 1,442-45 ft., pumped 40 bbl. Bell Oil Co.'s No. 1 H. Knolhoff, NE SE SW Section 2-1n-2w, Clinton County, Benoist 1,324-29 ft., 42 bbl.

In the Tonti pool in Marion County, Tex Harvey's No. 9-A Kagy, NW SE SE Section 33-3n-2e, Aux Vases 2,011, pumped 150 bbl.

In the Salem field in Marion County, Township 2n-2e, Texas Co. completed the following wells: No. 16 D. Young, NE SW NW Section 21, McClosky 1,986-64 ft., flowed 161 bbl.; No. 17 D. Young, NE SE NW Section 21, McClosky 2,011-66 ft. in streaks, pumped 140 bbl.; No. 4 E. Hilton, SE SE NE Section 28, Benoist 1,830-38 ft., pumped 497 bbl.; No. 12 T. Stroup, C E½ SW SE Section 30, McClosky in streaks 1,915-48 ft., flowed 504 bbl.; No. 14 J. Fresiner, C S½ NE NW Section 32, Salem pay in dolomite 1,943-61 ft., pumped 189 bbl.; No. 40 City of Centralia, NE SE SW Section 33, Benoist 1,817-55 ft,. pumped 217 bbl.; and No. 41 City of Centralia, SE SE SW Section 33, Benoist 1,827-65 ft., pumped 217 bbl.

Magnolia Petroleum Co. completed the following in the same township: No. 43 W. O. Chitwood, C N½ NW SW Section 16, abandoned location; No. 30 D. A. Shanafelt, C N½ NE NW Section 21, McClosky 2,004-94 ft., pumped 190 bbl.; No. J. H. Young, NW NW SW Section 21, Devonian 3,422-45 ft., flowed 2,224 bbl.; and No. 29 W. B. Young, C N½ NE SW Section 21, McClosky 2,063-98 ft., flowed 60 bbl.

In Township 1n-2e in the Salem field, Texas Co. completed the following: No. 4 Frederich, NE NE NW Section 7, Aux Vases 1,825-64 ft., flowed 1,582 bbl.; No. 8 Lanksford, SE NW NE Section 4, Benoist 1,845-79 ft., pumped 245 bbl.; No. 16 E. Tate, NE SW NW Section 5, Aux Vases 1,754-98 ft., flowed 1,169 bbl., and No. 24 O. Johnson, SW NE SE Section 6, Aux Vases 1,755-1,815 ft., flowed 665 bbl.

In the same Township, Hollingsworth's No. 4 Kalkbrenner, NE SE SW Section 5, Salem lime 2,178 ft. with pay 2,185-2,210 ft., flowed 360 bbl.; W. C. McBride Inc.'s No. 4 William Fyke heirs, NW SW SE Section 5, Salem lime pay 2,183-2,200 ft., flowed 1,050 bbl., and Gibson and Jennings' No. 3 R. Phillips, NE SW NW Section 7, Benoist 1,838-65 ft., flowed 150 bbl. An attempt for Devonian production on the flank of the Salem field was unsuccessful when Hawley Oil Co.'s No. 1 Bryant, C S½ NE NE Section 4-1n-1e, Chattanooga shale 3,030 ft., lost 32 joints of drill pipe in the hole and was abandoned at 3,344 ft.

In the Centralia townsite, Lewis Lilly and others' No. 1 Gum, SW SE NE Section 13-1n-1w, Clinton County, total depth 2,933 ft., perforated with 24 shots at 2,901-07 ft., treated with 100 gal. acid, flowed 782 bbl. with 150 lb. casing pressure and 75 lb. tubing pressure; gravity of the oil was 41 at 50°.

In Clay County, Pure Oil Co.'s No. 1 Z. Kohlmeyer, C E½ SE NE Section 13-2n-7e, McClosky 3,068-85 ft., pumped 196 bbl. Pure Oil Co.'s No. 1 L. Scrugham "B", SE NE NE Section 24-2n-7e, McClosky 3,002-17 ft. in streaks, flowed 900 bbl.

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14-14.9	$.80	$.74	$.79	$.78	$.79	$.80	$.76	...	...	...	$.80	$.76	$.76	$.77	$.78	...	...	...	$.70	$.70	$.70	...	...
15-15.9	.80	.74	.79	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	...	.70	.70	.70	...	...
16-16.9	.80	.74	.79	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	...	.70	.70	.70	...	...
17-17.9	.80	.74	.79	.78	.81	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	...	.70	.70	.70	...	...
18-18.9	.80	.74	.79	.78	.84	.80	.78	...	...	...	.82	.76	.76	.77	.78	...	...	...	.70	.70	.70	...	...
19-19.9	.82	.74	.79	.82	.87	.84	.81	...	...	...	.85	.76	.78	.77	.78	...	...	$.70	.74	.74	.71	$.70	...
20-20.9	.85	.74	.79	.85	.90	.88	.84	...	...	...	.88	.78	.82	.77	.80	...	...	.70	.78	.78	.72	.70	...
21-21.9	.88	.74	.79	.89	.93	.93	.88	...	...	...	.91	.80	.85	.77	.84	.78	...	.73	.82	.82	.74	.70	...
22-22.9	.92	.74	.82	.92	.96	.98	.92	...	...	...	.93	.84	.89	.79	.88	.78	...	.77	.87	.86	.78	.72	...
23-23.9	.95	.77	.86	.96	.99	1.02	.96	$.84	$.79	...	.96	.88	.93	.82	.92	.78	...	.80	.92	.90	.82	.76	...
24-24.9	.99	.80	.91	1.00	1.02	1.06	.99	.88	.81	...	.99	.91	.96	.85	.96	.82	...	.84	.97	.94	.86	.79	...
25-25.9	1.03	.82	.95	1.03	1.05	1.11	1.03	.93	.83	...	1.02	.95	...	.89	.99	.86	...	.88	1.01	.98	.90	.83	...
26-26.9	1.06	.85	1.00	1.07	1.09	1.16	1.06	.98	.86	...	1.05	.98	...	.93	1.03	.90	...	.91	1.06	1.02	...	...	...
27-27.9	1.10	.88	1.05	1.11	1.12	...	1.10	1.03	.88	...	...	1.02	...	.97	1.06	.95	$.91	.95	1.10	1.06	...	...	...
28-28.9	1.14	.90	1.10	1.14	1.15	F.O.B.	1.14	1.07	.90	...	...	1.06	...	1.01	1.10	.99	.94	.99	1.15	1.10	...	...	...
29-29.9	1.17	.93	1.15	1.18	1.18	our	1.17	1.12	.93	...	...	1.09	...	1.06	1.14	1.03	.98	1.02	1.20	1.14	...	...	...
30-30.9	1.21	.95	1.19	1.22	1.21	pipe	1.21	1.17	.95	F.O.B.	...	...	...	1.10	1.17	1.08	1.02	1.06	1.25	1.18	...	...	...
31-31.9	...	...	...	...	1.24	line	1.24	1.22	.97	ship	...	...	...	1.14	1.21	1.12	1.06	1.09	1.29	...	...	...	...
32-32.9	...	...	...	...	1.27	...	1.27	1.27	1.00	...	...	...	...	1.18	1.25	1.16	1.09	1.13	1.34	...	...	...	...
33-33.9	...	...	...	...	...	...	...	1.32	...	$1.28	...	...	...	1.22	1.28	1.20	1.13	1.17	1.38	...	...	...	$1.19
34-34.9	...	...	...	...	...	...	...	1.37	...	1.32	...	...	...	1.26	1.32	1.25	1.17	1.20	...	...	...	...	1.23
35-35.9	...	...	...	...	...	...	...	1.42	...	1.35	...	...	...	1.30	...	1.29	1.20	...	...	...	...	...	1.27
36-36.9	...	...	...	...	...	...	...	1.46	...	1.39	...	...	...	1.34	...	1.33	1.24	...	...	...	...	...	1.31
37-37.9	...	...	...	...	...	...	...	1.51	...	1.43	...	...	...	1.38	...	1.37	1.28	...	...	...	...	...	1.35
38-38.9	...	...	...	...	...	...	...	1.56	...	...	...	...	...	1.42	...	1.42	1.31	...	...	...	...	...	1.39
39-39.9	...	...	...	...	...	...	...	1.61	...	...	...	...	...	1.47	...	...	1.35	...	...	...	...	...	1.43
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Newhall, McKittrick, Kern River, Kern Front and Round Mountain, 70 cents for all grades. *Posted by Union Oil Co. Same company's Brea Canyon schedule stops at $1.14 for 28° and over, and Belridge and Lost Hills schedule stops at $1.32 for 37° and over. By Standard Oil Co., effective October 15; El Segundo, 14 to 18.9°, 80 cents; 19-19.9, 82 cents; 20-20.9, 85 cents; 21-21.9, 88 cents; 22-22.9, 92 cents; 23-23.9, 95 cents; 24-24.9, 99 cents; 25-25.9, $1.03; 26-26.9, $1.05; 27-27.9, $1.10; 28-28.9, $1.14; 29-29.9, $1.17; 30-30.9, $1.21. Wilmington, 14 to 16.9, 75 cents; 17-17.9, 77 cents; 18-18.9, 79 cents; from 19° upward, prices same as Signal Hill.

By Union Oil Co., Santa Paula, effective June 22, 1936: 21° and below, 70 cents; 22°, 72 cents; 23°, 76 cents; 24°, 79 cents; 25°, 88 cents. Orcutt, effective June 22, 1936: 17° and below, 70 cents; 18°, 72 cents; 19°, 74 cents; 20°, 77 cents; 21°, 80 cents; 22°, 83 cents; 23°, 86 cents; 24°, 88 cents; 25°, 91 cents; 26° and upward, 93 cents.

Effective October 1, 1939, Standard Oil Co. of California began posting prices in Cole's Levee and Richfield Western fields as follows: 27°, $1.00; 28°, $1.03; 29°, $1.06; 30°, $1.09; 31°, $1.13; 32°, $1.16; 33°, $1.19; 34°, $1.22; 35°, $1.26; 36°, $1.29; 37°, $1.32; 38°, $1.35; 39°, $1.39; 40°, $1.42; 41°, $1.45; 42°, $1.48; 43°, $1.51; 44°, $1.55; 45°, $1.58; 46° and over, $1.61.

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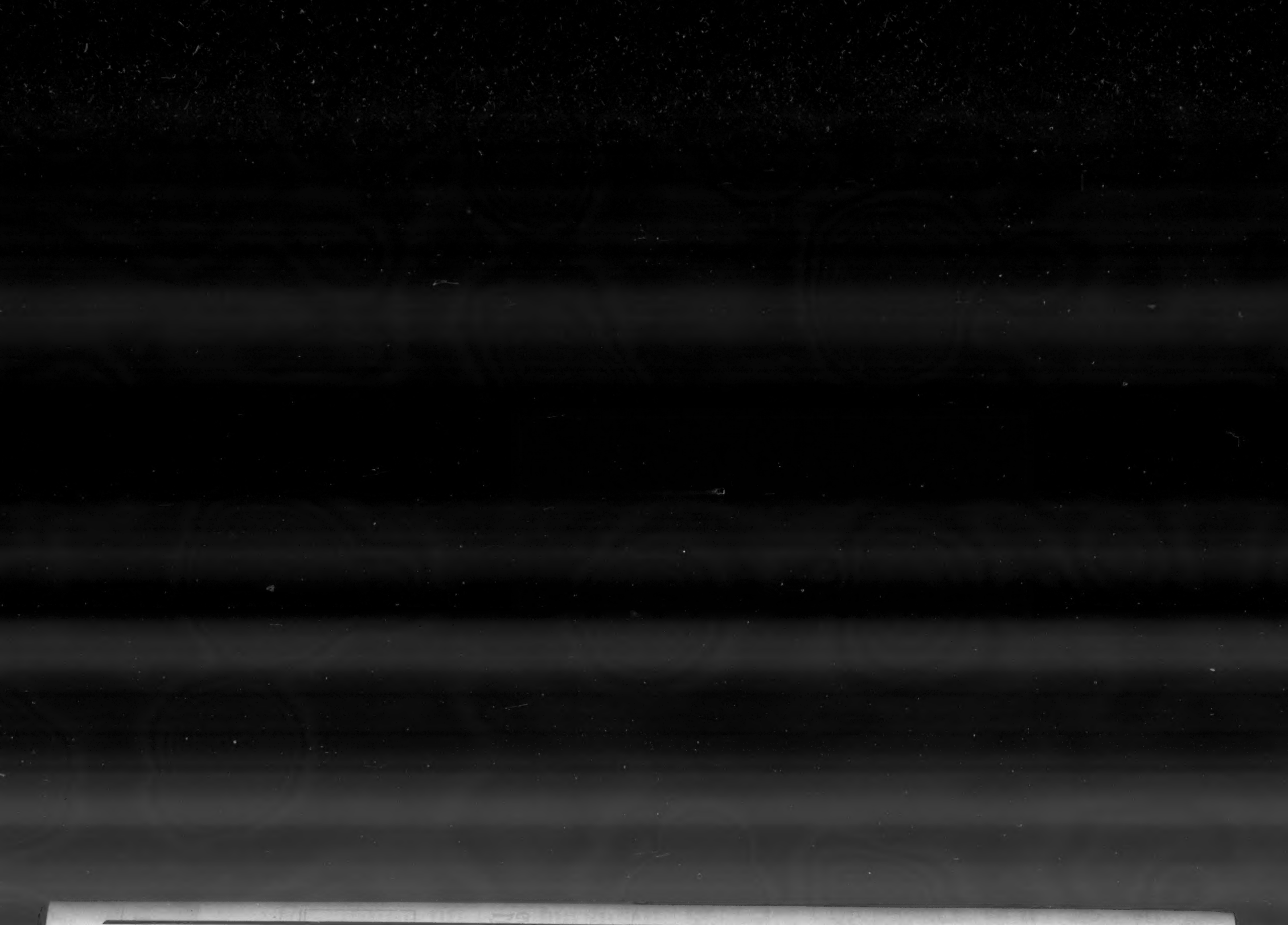
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